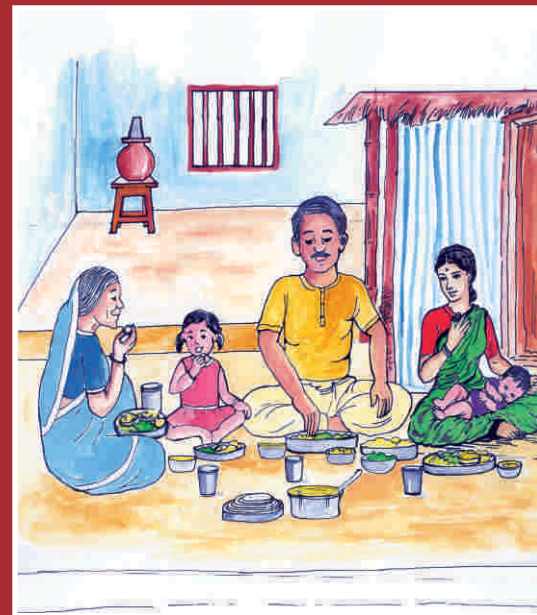
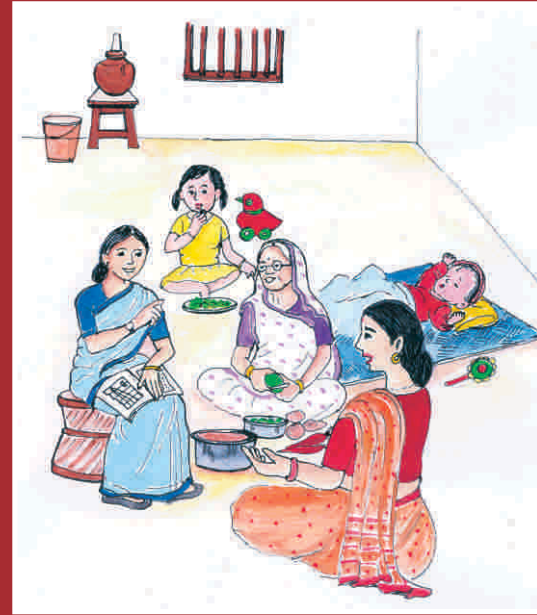
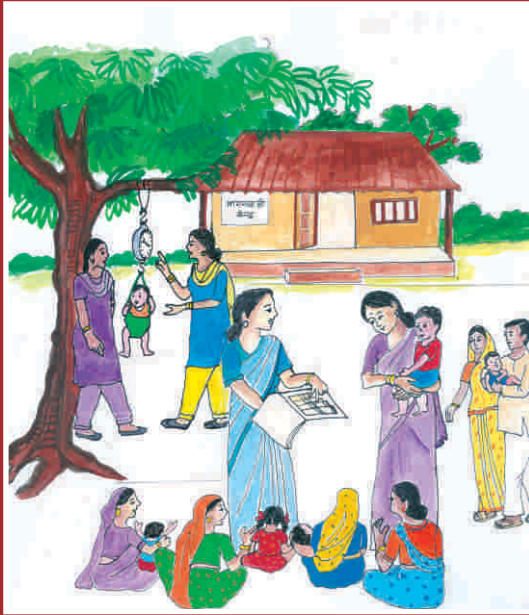


GROWTH MONITORING MANUAL



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National Institute of Public Cooperation and Child Development
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कृष्णा तीरथ
Krishna Tirath



सत्यमेव जयते

राज्य मंत्री (स्वतंत्र प्रभार)
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MINISTER OF STATE (INDEPENDENT CHARGE)
MINISTRY OF WOMEN AND CHILD DEVELOPMENT
GOVERNMENT OF INDIA
NEW DELHI-110001

MESSAGE

Human growth is very fast in formative years, particularly from birth to five years. Health and medical experts therefore plead for particular care in infancy and early childhood. That also is the reason why children of this age group have been set as main target of Integrated Child Development Services (ICDS), the world's largest programme for healthy growth and development of infants and children in terms of types of services being provided and the coverage. In our country, a significant number of children continue to be undernourished and neglected, which makes them vulnerable to several diseases. It is unfortunate that many of these diseases are either vaccine-preventable or, if contracted, easily curable.

It is in this context that the practice of growth monitoring acquires significance. Fortunately, the onset of malnutrition, anaemia and most of the diseases can be detected if the growth is monitored regularly. Anganwadi Workers (AWWs), who constitute the backbone of ICDS system, are responsible for taking and maintaining the growth record of all the below-five years' children in the area of their jurisdiction. They are also the ones who advise the sick children requiring expert handling to the Primary Health Centre/ Sub Centre or Medical Officer.

The growth of the children is monitored by AWWs and the respective Supervisors making use of growth charts, which in lay terms means an illustrative bird's eye view of each individual child that instantly shows whether the child is normal or suffering from malnutrition – if so of what grade. Years of experience of monitoring, however, revealed certain lacunae so that it was difficult to bring out accurate picture of health status of Child. The New WHO Growth

Standards were therefore evolved for growth monitoring of infants and children. These new standards take cognizance of the varying growth patterns of boys and girls. After longitudinal field-tests over a couple of years, it has therefore been decided to disseminate the growth monitoring guidelines incorporating the New WHO Growth parameters among the NRHM and ICDS functionaries across the country.

I believe, the trainers at Child Development/ Health Departments all over the country shall find the document very useful. I congratulate Dr Dinesh Paul, Director NIPCCD and his team for bringing out this comprehensive manual for use of ICDS and NRHM trainers.



[Krishna Tirath]

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PREFACE

Growth monitoring and promotion of children from birth to five years is one of the important components of the ICDS programme. Weight-for-age is used as an indicator for detecting early growth faltering, assessing nutritional status of children and taking appropriate measures on the first signs showing inadequate growth or no weight gain or loss of weight, for preventing and reducing the undernutrition. Growth monitoring is done with the help of growth chart developed on the basis of growth standards of children.

The use of child growth standards has not been consistent across the country. Different child growth standards and systems of classification were used by different organisations and no inter-comparison guidelines have been available. In order then to harmonise and to promote the use of uniform and improved child growth standards, the Ministry of Women and Child Development and Ministry of Health and Family Welfare have jointly introduced New WHO Child Growth Standards in the country for monitoring growth of children using the ICDS Scheme and NRHM programme with effect from 15 August 2008. The new child growth standards are different from the previously used IAP classifications and entail a shift from describing how children grow to prescribing how they should grow, and their right to grow. They are based on the premise that children born in different regions of the world, if provided optimum conditions in life, have the potential to grow and develop within the same range of height and weight for age. These standards provide a correct assessment of undernutrition, with breastfed infants as the normative model for growth and development, and promote early preventive action. Another major milestone has been the finalisation of the new common Mother and Child Protection Card, incorporating these standards, mandated for use in both ICDS and NRHM, by a joint circular of both ministries in March 2010. The efforts of national core resource team, headed by Dr. Shreeranjana, JS, MWCD including its members for the MCP card, national core trainers training and India adaptation training package is noteworthy.

Keeping in view the consequential changes required for plotting and interpretation of growth curves, there was a need to revise the Growth Monitoring Manual developed earlier using growth charts based on Harvard

Standards and IAP Classification. The new Manual has been prepared to impart knowledge and understanding and improve the skills of ICDS functionaries in regard to determining the correct age of the child, accurate and safe weighing of infants and children, plotting weight on the growth chart, interpreting the growth curve, and discussing the child's growth and follow-up action required with the mother for growth promotion of children.

I will like to compliment National Institute of Public Cooperation and Child Development (NIPCCD) for the efforts put in by them in the Growth Monitoring Manual. I must place on record sincere appreciation of efforts put in by Dr. Dinesh Paul, Director, NIPCCD for preparation of this document with able assistance of Dr. Neelam Bhatia, Joint Director (Training) and Dr. Suryamani Mishra, Faculty. I am certain that this will serve as a useful tool for facilitating growth promotion of children.



(D.K. SIKRI)



MKE Jhã u
Dr. Shreeranjã
I a Ør I fpo
Joint Secretary

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FOREWORD

Growth Monitoring and promotion of children from birth to five years is one of the important activities of Anganwadi Centre (AWC) under Integrated Child Development Scheme (ICDS) programme. Growth monitoring is a regular measurement of growth which enables mothers to visualise growth, or lack of it, and obtain specific, relevant and practical growth guidance to ensure continued regular growth and health of children. Weight for age has been adopted as the method for assessment and improvement of nutritional status of children under the ICDS programme. The task of growth monitoring requires technical skill on the part of AWWs for proper weighing, plotting weight on growth charts, interpreting growth curve and finally using the growth card as a tool for imparting education to mothers to promote child growth.

A Manual on Growth Monitoring was prepared by National Institute of Public Cooperation and child Development (NIPCCD) in the year 1988 for providing detailed information on various tasks involved in growth monitoring to facilitate effective training of ICDS project functionaries. However, keeping in view the changes in plotting and interpretation of growth curves due to introduction of New WHO Child Growth Standards, a need was felt to revise the Growth Monitoring Manual developed earlier.


In order to introduce New WHO Child Growth Standards, a National Workshop on the Adoption of New WHO Child Growth Standards was organised jointly by the Ministry of Women and Child Development (MWCD) and Ministry Health & Family Welfare (MHFW), Government of India, with WHO and UNICEF collaboration in New Delhi on 8-9 February 2007. The Workshop recommended introduction of the new WHO child growth standards in ICDS and NRHM. MWCD facilitated organisation of four regional workshops in November & December 2008 at NIPCCD, New Delhi and its Regional Centres in collaboration with UNICEF and WHO to sensitise all key senior officials of State WCD and Health & Family Welfare about the New WHO Growth Standards. Further, MWCD with support from National Institutions like National Institute of Nutrition (NIN), NIPCCD, National Institute of Health and Family Welfare (NIHFW) and WHO, UNICEF organised the National Core Trainers Training Programme on Child Growth Assessment-WHO Child Growth Standards from 9-12 June

2009 at Hyderabad for facilitating training of functionaries. Later, MWCD organised a National Consultation on India Adaptation of Training Package on WHO Child Growth Standards (Integrating Mother & Child Protection Card) in collaboration with WHO and UNICEF in July 2009 at NIHF, New Delhi for implementation of the new growth standards in the country. A series of Sensitisation Workshops at the state level were organised all over the country to roll out the Chart and Card.

The Manual provides comprehensive information on all aspects of growth monitoring. It contains eight chapters: Introduction to growth monitoring; Determining correct age of the child; Accurate and safe weighing of infants and children; Plotting weight on the growth chart; Interpreting the growth curve; Discussing the child's growth and follow-up action with the mother; Organising and accomplishing the task of growth monitoring; Role of supervisor in growth monitoring. The document is targeted at the trainers and functionaries of ICDS. With some modifications, it can be used by trainers of other child care functionaries as well.

I acknowledge the sincere efforts made by Dr Dinesh Paul, Director, NIPCCD and his project team consisting of Dr. Neelam Bhatia, Joint Director (Training), Dr. Suryamani Mishra, Faculty and Ms Aliya Tayyaba, Project Assistant for revising the Manual.

I also take this opportunity to appreciate efforts made by individuals and institutions involved in the process of finalisation and adaptation of New WHO Child Growth Standards which contributed for preparation of this Manual. I express my special thanks to Smt. Deepika Srivastva, UNICEF, Shri Mahesh Arora, Director, MWCD, Smt. Archana Awasthi, Director, MWCD and Dr. G.N.V. Brahmam, Head of the Department, Division of Community Studies, NIN, Hyderabad for providing inputs for finalisation of the Manual.


(Dr. Shreeranjana)

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WHAT IS THE DOCUMENT?

This manual gives detailed information in the area of growth monitoring. The document contains eight chapters: Introduction to growth monitoring; Determining correct age of the child; Accurate and safe weighing of infants and children; Plotting weight on the growth chart; Interpreting the growth curve; Discussing the child's growth and follow-up action with the mother; Organising and accomplishing the task of growth monitoring; Role of supervisor in growth monitoring.

FOR WHOM?

The document is for all those involved in training in growth monitoring. It is focused on the trainers of Integrated Child Development Scheme (ICDS) functionaries. With some modifications, it can be used by trainers of other child care functionaries as well.

HOW TO USE?

Read each chapter carefully. At the end of each chapter certain exercises have been suggested. Complete these exercises before going on to the next chapter.

GROWTH MONITORING IS A REGULAR MEASUREMENT OF GROWTH WHICH ENABLES MOTHERS TO VISUALISE GROWTH, OR LACK OF IT, AND OBTAIN SPECIFIC, RELEVANT AND PRACTICAL GUIDANCE TO ENSURE CONTINUED REGULAR GROWTH AND HEALTH OF CHILDREN.



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ABBREVIATIONS

ADI	Average Dietary Intake
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AWC	Anganwadi Centre
AWW	Anganwadi Worker
AWTC	Anganwadi Workers' Training Centre
CDPO	Child Development Project Officer
ICDS	Integrated Child Development Scheme
JSY	Janani Suraksha Yojana
LHV	Lady Health Visitor
MCP Card	Mother & Child Protection Card
MLTC	Middle Level Training Centre
MoHFW	Ministry of Health and Family Welfare
MO	Medical Officer
MWCD	Ministry of Women and Child Development
NIPCCD	National Institute of Public Cooperation and Child Development
NFHS	National Family Health Survey
NGO	Non Government Organisation
NRHM	National Rural Health Mission
ORS	Oral Rehydration Solution
PHC	Primary Health Centre
RDA	Recommended Dietary Allowance
SNP	Supplementary Nutrition Programme
TBA	Trained Birth Attendant
THR	Take Home Ration
UNICEF	United Nations Children's Fund
WHO	World Health Organisation



CHAPTER - I

INTRODUCTION TO GROWTH MONITORING

After reading this chapter and completing the exercises suggested at the end of the chapter, the reader will be able to:

1. define growth and explain its relationship to health of the child;
2. describe at least three important factors affecting growth; and
3. describe the process of measuring growth known as growth monitoring, pointing out the five steps to be taken in growth monitoring.

WHAT IS GROWTH

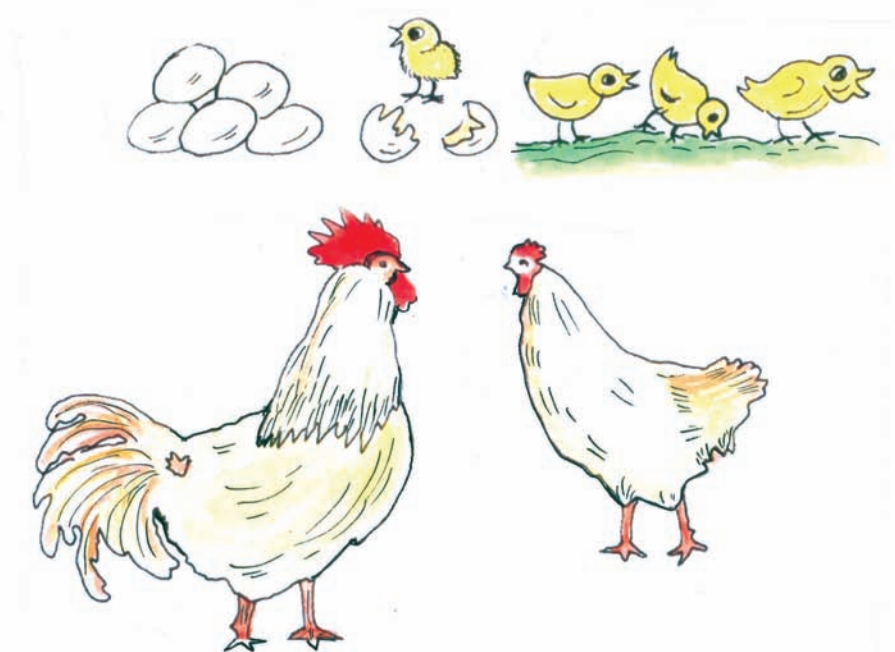
Growth is the regular increase in size or weight of any living thing, whether it is a plant, an animal, or a human being. Regular and continuous growth is the essence of health in early life of living objects.

1.1 Growth is a continuous process, going on every moment, and is the result of everything in the environment and life of living things. When a seed grows into a seedling, and then into a plant, we say that it is growing (Picture 1.1). A plant's regular growth depends upon the quality of the soil, the availability of water, sunlight, fertilizer, absence of disease and continued removal of weeds. Similarly, when a small baby gains weight, grows in height, begins to roll over, sit up and walk, we say that the child is growing. Optimal child growth occurs only with adequate food, a caring, nurturing, social environment and absence of illness, which provides full attention to the growing baby.

PICTURE 1.1: STEPS OF GROWING A SEED INTO SEEDLING AND A PLANT



PICTURE 1.2: AN EGG TO BIRD



www.dreamstime.com royalty free stock photo: chicken life cycle

PICTURE 1.3: GROWTH OF ANIMAL



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REMEMBER:

GROWTH IS REGULAR INCREASE IN SIZE OR WEIGHT OF ANY LIVING THING.

1.2 NEW WHO GROWTH STANDARDS

It was recognised that the use of child growth standards is not consistent across the country, as different child growth reference values and different systems of classification are being used to assess nutritional status of young children. In ICDS, growth monitoring of children (weight-for-age) was done earlier using IAP Classification by modifying Harvard Standards (up to 80 per cent of median is normal; between 80 and 71 per cent is first degree malnutrition i.e. mild; between 70 and 61 per cent is second degree of malnutrition i.e. moderate; and under 60 per cent is third degree malnutrition i.e. severe). Comprehensive review showed growth patterns of healthy breastfed infants are different from the existing national/international references. The availability of new child growth Standards and implementation of Eleventh 5-Year Plan provided an opportune moment to review the use of different child growth standards in India, different classifications used, and to analyse different options for updating and harmonising the use of child growth standards in both ICDS and NRHM. In this context, a National Workshop on the Adoption of New WHO Child Growth Standards was organised jointly by the Ministry of Women & Child Development (MWCD) and the Ministry of Health and Family Welfare (MoHFW), Government of India, with WHO and UNICEF collaboration, at New Delhi on 8-9 February 2007. The recommendations of the workshop were endorsed for action by both MWCD and MoHFW. A joint policy directive dated 6 August 2008 was issued by the Secretaries of MWCD and MoHFW, Government of India to the Secretaries of Women and Child Development and Health and Family Welfare of all the States that the new WHO child growth standards would be adopted in India with effect from 15 August 2008 by both ICDS and NRHM.

1.2.1 As per the Joint Policy Directive dated 06.08.2008, NIPCCD organised a large number of training courses through its Headquarters and Regional Centres for training of Instructors of AWTCs/MLTCs on New WHO Child Growth Standards in ICDS and use of MCP Card. A copy of this three days training module is at Annexure-IV.

1.2.2 The new WHO child growth standards represent a shift from describing how children grow – to prescribing how they should grow – how they have a right to grow. They demonstrate for the first time ever that children born in different regions of the world and given the optimum start in life have the potential to grow and develop up to the same range of height and weight for age. The standards show that nutrition, environment and healthcare are stronger factors in determining growth and development than regional or ethnic background. Details of these three factors are:

Optimal Nutrition

- Exclusive breastfeeding up to six months
- Appropriate complementary feeding

Optimal Environment

- No microbiological contamination
- No smoking

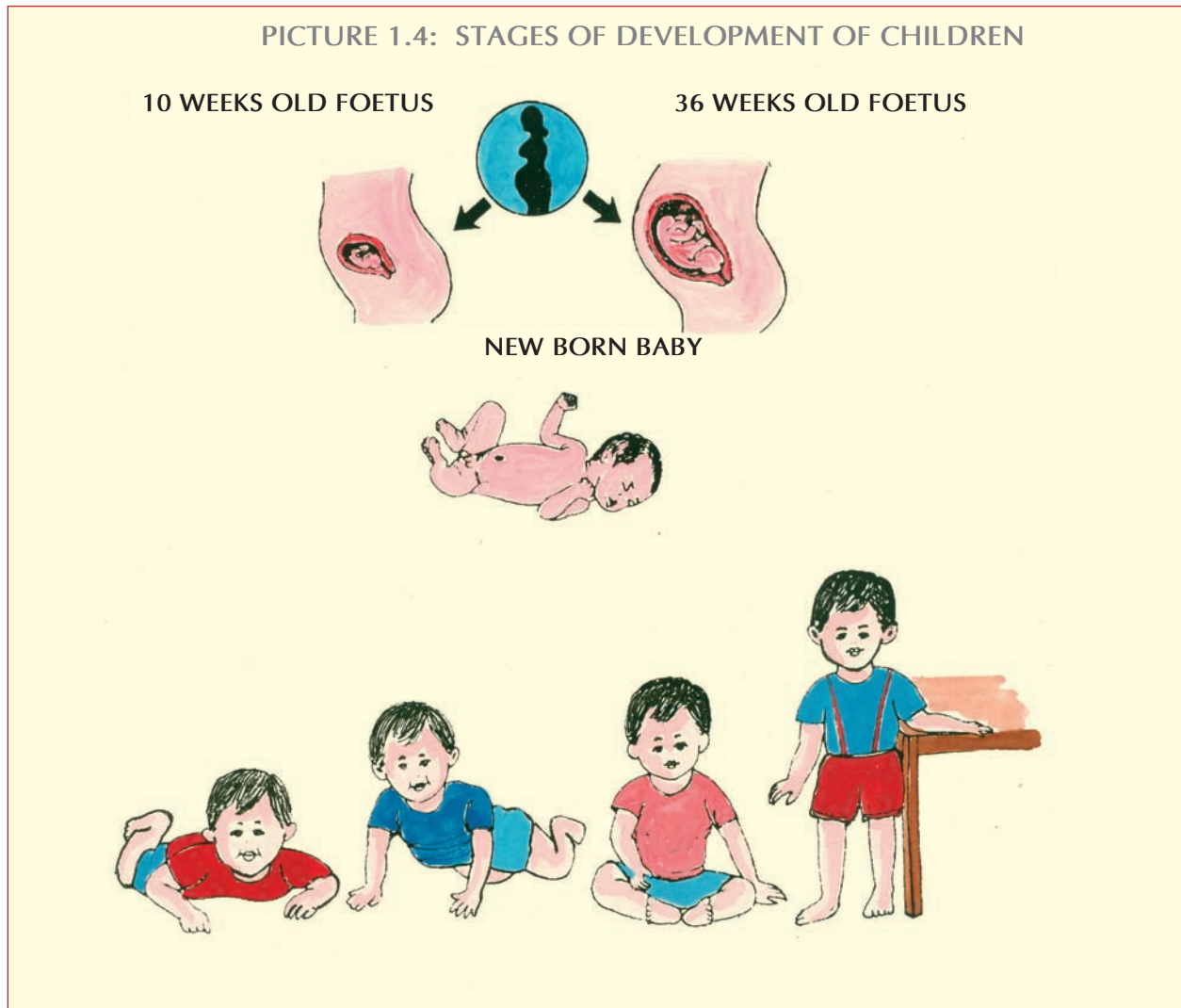
Optimal Health Care

- Immunisation
- Paediatric routines

1.3 HOW CHILDREN GROW

In children, growth is most rapid at the younger age. While the child is in the mother’s womb, it grows many times from a tiny egg to a baby weighing between 2.5 kg- 3 kg at birth (Picture 1.4). The baby grows most rapidly during the first year of life called infancy. Table 1.1 shows the normal weight gain of children from birth to 3 years. A healthy baby gains about 800 grams each month during the first two months of life, about 600 grams from 3 months to 4 months, around 400 grams from 5 months to 6 months, and thereafter healthy child gains around 200 grams each month up to 3 years. The faster growth in infancy makes these babies vulnerable to factors like inadequate nutrition or illness, which might slow or stop growth.

PICTURE 1.4: STAGES OF DEVELOPMENT OF CHILDREN



REMEMBER:

AS PER NEW WHO CHILD GROWTH STANDARDS, THERE ARE SEPARATE GROWTH CHARTS FOR GIRLS AND BOYS, AS THEY HAVE DIFFERENT WEIGHTS AND LENGTHS BEGINNING AT BIRTH AND GROW TO DIFFERENT SIZES ACCORDING TO AGE.

TABLE 1.1: NORMAL WEIGHT GAIN OF CHILDREN FROM BIRTH TO THREE YEARS

AGE GRAMS	AVERAGE WEIGHT GAIN PER MONTH IN
Birth to 2 months	800
3 months to 4 months	600
5 months to 6 months	400
7 months to 3 years	200

1.3.1 When growth slows or stops, we say growth “falters”. This is a sign that something is wrong with the child and must be discovered at the earliest and set right. We monitor or measure growth regularly to see whether the child is growing properly. If the child is growing, we say she is healthy. If she is not growing, we must find out why and take action to restore growth. It can be said that “A GROWING CHILD IS A HEALTHY CHILD”, and equally true that, “A CHILD WHO IS NOT GROWING IS NOT HEALTHY”.

REMEMBER:

CHILDREN GROW MOST RAPIDLY IN THE FIRST YEAR OF LIFE. A GROWING CHILD IS A HEALTHY CHILD.

1.4 HOW TO MEASURE GROWTH

Growth of a baby is seen in many ways: increase in size, height and weight, clothes becoming smaller than they used to be, a string on the waist becoming tighter etc. These are all signs of growth but they cannot tell us if the child is growing well enough for its age. There are many ways of measuring the growth of a child. The most accurate and sensitive measure of growth is weight gain. By weighing a child regularly, a change of even one to two hundred grams can be observed. This weight change is not visible by any other means of measuring growth. This is why we weigh children regularly to see how much weight they have gained.

REMEMBER:

THE MOST ACCURATE AND SENSITIVE MEASURE OF GROWTH IS WEIGHT GAIN.

1.5 WHAT IS GROWTH MONITORING

Weighing of the child at regular intervals, the plotting of that weight on a graph (called a growth chart) enabling one to see changes in weight, and giving advice to the mother based on this weight change is called ‘GROWTH MONITORING’. Monitoring means keeping a regular track of something, like every week or every month. It must be done at regular intervals. For growth monitoring, it is the change in weight over a period of time which is most important, rather than the weight itself. It should be done more frequently, i.e. once every month, up to age of 3 years and at least once in 3 months, thereafter.

1.5.1 Each time a child is weighed, the weight is recorded by marking a point on the chart. These points are joined by a line. This line is called a growth curve. If a child is growing and there

is regular weight gain, the line will move in an upward direction. Thus, growth becomes visible to the worker and the mother when the weight is plotted on a growth chart. When growth falters, i.e. when weight does not increase as expected, the line on the growth chart does not go upward, but stays flat. The line on the growth chart may even go in a downward direction, when a child loses weight.

- 1.5.2** Thus, monitoring the growth of a child every month enables us to see periods of no growth or weight loss even before a child starts appearing thin. This warns us to take early action to ensure that the child grows normally. Taking action on the first sign of growth faltering can easily restore health and proper growth.

REMEMBER:

THE PURPOSE OF GROWTH MONITORING IS TO TAKE ACTION ON THE FIRST SIGNS OF INADEQUATE GROWTH, NO GROWTH OR WEIGHT LOSS IN A CHILD SO AS TO RESTORE HEALTH AND PROPER GROWTH.

REMEMBER:

STEPS IN GROWTH MONITORING

Growth Monitoring involves five steps

Step 1: Determining correct age of the child

Step 2: Accurate weighing of the child

Step 3: Plotting the weight accurately on a growth chart of appropriate gender

Step 4: Interpreting the direction of the growth curve and recognising if the child is growing properly

Step 5: Discussing the child's growth and follow-up action needed, with the mother

1.6 WHEN TO START GROWTH MONITORING AND HOW OFTEN

Growth Monitoring must start at an early age in the child's life, right from birth. The Anganwadi Worker (AWW) must explain to the mother, and other older persons in the house, the importance of weighing a new born baby preferably, same day of birth. Help of the village traditional birth attendant (TBA) and Accredited Social Health Activist (ASHA) can be taken, if need be, to convince the mother.

- 1.6.1** We have already discussed that children grow most rapidly from birth to 3 years, particularly in the first six months. In this age, they are also more vulnerable to diseases and inadequate nutrition which affect normal growth pattern. It is, therefore, essential to monitor growth of children in this age more frequently. The AWW should weigh all new borns and children from birth- 1 month weekly, one month- 3 years every month and 3-5 years at every three months. However, children who are severely underweight, or who have not gained weight for 2 months, or who are "at risk" of under nutrition, should be weighed frequently preferably every month. However, keeping in view the golden principle of New WHO Growth Standards i.e. weighing and plotting weight of children on the basis of completed weeks/months, it is advisable to conduct four weighing sessions in a month at the AWC so that all children are weighed every month. Those children who do not attend AWC should also be motivated to attend the weighing sessions, without fail.

1.6.2 Keeping in view the actual number of children availing services under ICDS in the country, it can be roughly estimated that average number of children per AWC would be around 60 in the age group of 0-5 years for growth monitoring. There would be less number of children in the age group of 3-5 years (around 20) those are to be weighed quarterly and around 40 children per AWC would be available in the age group of birth to 3 years those are to be weighed monthly. It may be mentioned that weekly weighing has to be done in the first month for every child. Therefore, keeping in view the number of children to be weighed, time required for weighing a child, daily workload/ activities of AWW and need for weighing and plotting weight on completed month, it is suggested that there should be four weighing sessions per month at every AWC. Day of weighing of each child should be determined keeping in view her/his date of birth in order to ensure that every child is weighed on completed month. It may not be feasible to weigh every child on her/his completed month. However, efforts should be made to fix the days of weekly weighing in such a way so that maximum number of children who complete and those who have already completed their months are accommodated on that day for proper growth monitoring. It is also required that apart from frequent weighing of severely underweight children by AWW, measures for rehabilitation and management of the severely underweight children should be taken on monthly Village Nutrition and Health Day by Health Officials.

REMEMBER:

GROWTH MONITORING MUST START RIGHT FROM BIRTH OF THE CHILD. GROWTH OF ALL THE CHILDREN FROM BIRTH TO 3 YEARS, THOSE AT RISK OF UNDER NUTRITION, AND WHO HAVE NOT GAINED WEIGHT FOR 2 MONTHS MUST BE MONITORED EVERY MONTH. GROWTH OF CHILDREN FROM 3-5 YEARS MUST BE MONITORED AT EVERY THREE MONTHS

In the following chapters, you will be reading details on the five steps in growth monitoring.

EXERCISE-1

Fill in the Blanks

- (1) Growth is the regular _____ in size or weight & height of a child.
- (2) A child who gains weight and height every month is a _____ child.
- (3) Three important factors that are required for growth of a child are
i) _____ ii) _____ iii) _____
- (4) List the five steps to be taken for growth monitoring:
i) _____
ii) _____
iii) _____
iv) _____
v) _____

Check your answers from Annexure-V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

CHAPTER - II

DETERMINING THE CORRECT AGE OF THE CHILD

After reading this chapter and completing the exercises suggested at the end of the chapter, the reader will be able to:

1. understand the different ways of determining the correct birth months and year of a child;
2. demonstrate how to question the mother to find out the correct birth month and year of child;
3. prepare a local events calendar; and
4. demonstrate how to use the local events calendar to determine correct birth month and year of the child.

HOW TO DETERMINE AGE

Let us now read details on the first step of growth monitoring which is determining correct age of the child. In the Integrated Child Development Scheme (ICDS) programme, growth monitoring is done by weight for age method comparing the weight of the child with his age. We, therefore, first need to know the correct age of the child up to nearest month. If the child's age is not known correctly, it is not possible to assess the growth of the child and have an accurate growth chart. An under or over estimate of even two or three months could result in the child being considered either healthy or undernourished than what he actually is. Therefore, knowing the correct age of the child is necessary to do accurate growth monitoring.

2.1 The AWW should be aware of all the births taking place in her area. She can do this by keeping in constant contact with the pregnant women, who are her beneficiaries in the last trimester. She should note down the date of birth of a child as soon as the woman delivers the baby. Keeping in touch with the local trained birth attendant (TBA) can also help her in knowing the births of new babies. The AWW should immediately record the date of birth (day, month and year) of the child in her register. She should also start monitoring the growth of these children.

2.2 However, if the mother comes to her present place of residence a few months or years after the child's birth, she may not remember the month of birth of the child. For these children, the AWW can consult the local official register of births with the village panchayat, and or hospital card (in case of urban projects or rural projects close to city). Keeping in view implementation of Janani Suraksha Yojana (JSY), number of institutional deliveries has been increased in our country. Therefore, date of birth in case of large number of children would be available with the health centre. If, however, there are no such records of births in a given area, AWWs can assess the age of a child:

- with the help of Mother and Child Protection Card (MCPC)
- with the help of birth certificate
- from the mother, if she remembers the exact date of birth
- using a local events calendar.

2.3 Talking to the Mother

By asking the mother, father, grandparents, or even neighbours a few questions, the birth of a child can be related to season or some important festival or event in the past. The AWW should remind the mother of events that can help her to recollect when her child was born. The following questions may be put to the mother.

“Was it the summer, rainy season or winter when the child was born?”

If the mother lives in a rural area, you may enquire about the agricultural operation that took place at the time of her child's birth, or the celebration of a festival.

“Was it the kharif season or rabi season?”

Which crops were being grown at that time”

“Did any special event (election, nautanki, visit of a politician, a wedding etc.) took place soon before or after birth?

“Was any crop being harvested at that time?”

“Was the child born soon before or after the birth of a child whose date of birth is known?”

“Was any festival celebrated days before or after the birth?”

These are examples of some of the questions she may ask to the mother. After getting a rough idea of the child’s birth month, to pinpoint the correct birth month of the child, a local events calendar, listing local festivals, can be helpful.

2.4 Local Events Calendar

A local events calendar indicates all the dates on which important events took place during the past five years. Such a calendar should show the following :

- a) the different seasons – summer, monsoon, autumn, winter and spring;
- b) important events in the agricultural cycle of the area, such as sowing and harvesting of rabi crops (wheat, barley, sarson) and kharif crops (jowar, bajra, maize) and the other crops;
- c) names of months – both Indian (Chaitra, Baisakhi, etc.) and Western (January, February etc.);
- d) local festivals, such as Lohri, Baisakhi, Ram Navmi, Idul Fitar, etc.;
- e) phases of the moon, such as full moon (Poornima), new moon (Amavas), Ekadshi, etc.;
- f) national festivals, such as Republic Day, Independence Day, etc.; and
- g) other events of importance like general elections, panchayat elections, municipal elections, drought, floods or cyclones in the area, visits of very important persons etc.

2.5 No uniform calendar of events can be prescribed for the entire country, state or even a district. This calendar is by definition ‘local’ in nature and will vary from locality to locality. Therefore, the AWW should make a calendar of local events for the last five years for her area. An example of such a local events calendar is given at Annexure-I.

2.6 After questioning the mother regarding the season, crop harvest, events, festivals, etc. which occurred soon before or after the birth of the child, the AWW should look up the local events calendar to find out the exact birth month.

2.7 An illustration of how to question the family members and use the local events calendar to find out the birth, month and year of the child is given below.

This conversation took place in April 2007

- AWW "Kamla, how old is your child Ram?"
- Mother "Let me count, Well 1, 2 and 3, about 3 years. Mother, isn't that so"?
- Grandmother "Yes, I think Ram has completed 3 years already".
- AWW "What was the season he was born in ? Was it summer, winter or the rainy season?"
- Mother "It was severely cold. It was winter then."
- Grandmother "It was the month of Paush. Wheat had been sown about 2 months earlier."
- AWW "Was it somewhere near Lohri?"
- Neighbour "Oh yes, it was only 3 days before Lohri. You remember Kamla, we celebrated Lohri 3 days after the birth of Ram".
- Mother and Grandmother "Yes, yes you are right".

AWW can say that the child was born on 10 January 2004 as Lohri was celebrated on 13 January 2004.

REMEMBER:

KNOWING THE CORRECT AGE OF THE CHILD IS NECESSARY TO DO ACCURATE GROWTH MONITORING.

EXERCISE-2

(1) Fill in the Blanks

- a) It is important to know the correct age of the child for
- b) Anganwadi Worker can know the correct birth date, month and year of child from
- (i) _____ (ii) _____
- (iii) _____ (iv) _____
- (2) Add the local festivals and events of your area to the local events calendar given at Annexure-I.
- (3) The Anganwadi Worker asked Rama in January 2009 when her daughter Luxmi was born. The Anganwadi Worker asked her number of questions and found out that Luxmi was born about a week before Diwali in the last year. What is the date, month and year of birth of Luxmi ?
- (4) Maya and her husband Madhav have come to the village in October 2006. Their son, Ram has just started going to the school. They have a daughter named Rita who has recently started walking with support. Since the mother had no record of Rita's birth date, Anganwadi Worker asked the mother when Rita was born. She said that, after her first son was about a year old, she conceived but lost the baby after 3 months of pregnancy. Then she conceived Rita after four years. Anganwadi Worker asked for some record of date of birth of Ram. She had some papers from the PHC which she showed. That record showed Ram's birth in October 2000. The mother also told that Rita was born in winter about 10 days before Diwali. When was Rita Born?
- (5) Talk to 3 mothers, who do not know the dates of birth of their children. Find out the dates of birth (in completed months) by questioning them and, if required, using local events calendar.
- (6) A child was born on 18 August 2009. What is the age of the child today (15-08-2010).

Check your answers from Annexure-V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

CHAPTER - III

ACCURATE AND SAFE WEIGHING OF INFANTS AND CHILDREN

This Chapter shall enable the reader to:

1. name the major parts of the Bar and Salter scales;
2. demonstrate how to hang the scale correctly;
3. demonstrate how to adjust the scale to zero;
4. demonstrate the proper and safe way of placing the child in the sling or basket or pants;
5. demonstrate accurate reading of the weight to the nearest 100 grams (by approximation in case of Salter scale);
6. demonstrate safe removal of the child from the sling or basket or pants;
7. become acquainted with use of taring (digital) scale.

WEIGHING OF INFANTS AND CHILDREN

Let us now learn more about the second step of growth monitoring, which is accurate weighing of children. Regular weighing of the child is necessary for monitoring her/his growth. The two types of scales being used in ICDS for weighing children are the 'Bar scale' and the 'Salter or Dial type scale'. We shall also learn in this chapter, weighing a child using a taring (digital) scale.

Let us first learn how to use the Salter scale.

3.1 SALTER WEIGHING SCALE

The Salter Weighing Scale is a reliable, light and portable scale, which can weigh children weighing up to 25 kg. The Salter scale is round in shape, with the needle in the centre (Picture 3.1). Weights are marked in kilograms around the dial. There are two variations of the Salter scale. One type has only 500 gm markings between kilograms, and the other has 100 gm as well as 500 gm markings between kilograms. Salter scale with only 500 gm divisions is not used now-a-days. The Scale has a screw on top to make the zero adjustment so that the needle points to zero before the child is weighed.

3.1.1 The scale has two hooks. One on the top is used to hang the scale on a beam or branch of a tree with a rope. The other one is below the dial and is used to hang the sling or pants in which the child is placed for weighing. The method of weighing a child in a Salter scale is explained in the following pages (Picture 3.2-3.6).

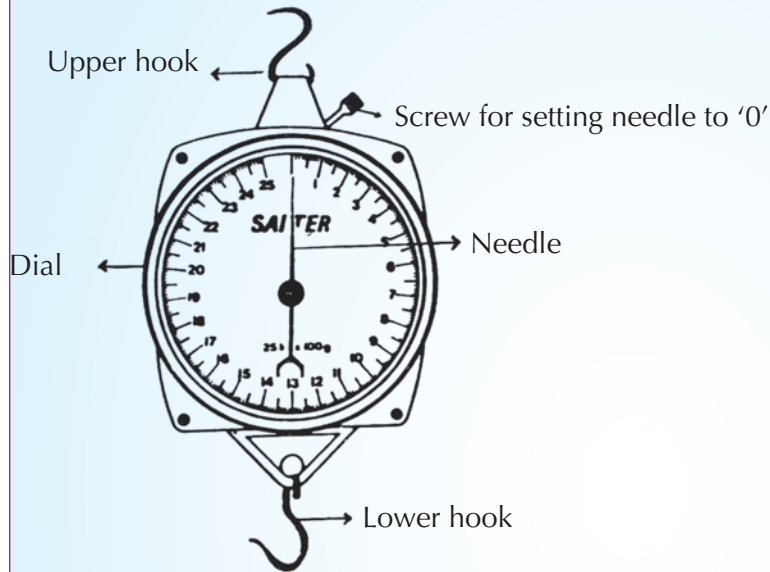
PICTURE 3.1: SALTER SCALE OF 100 GRAM DIVISIONS

The Salter scale can weigh children up to 25 kg.

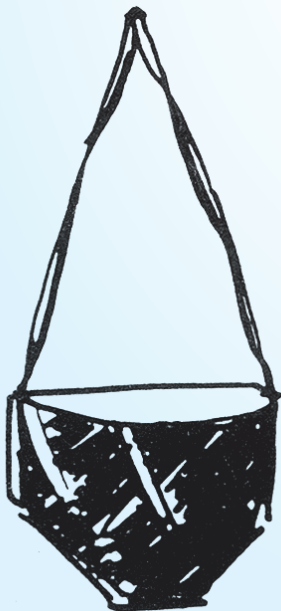
There are two variations of the Salter scale.

One type has 500 gm divisions between kilograms, and the other type has 100 gm divisions between kilograms.

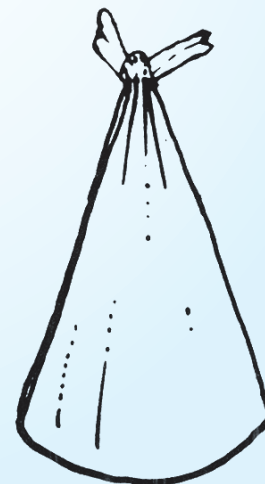
Salter scale with 100 gram divisions



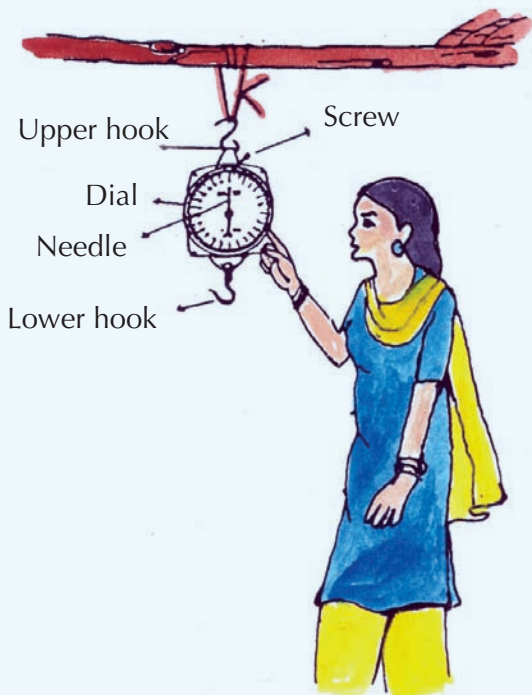
Pants/sling for weighing children



Sling for weighing infants can be made with any cloth knotted or joined with rope at the top



PICTURE 3.2: PARTS OF SALTER SCALE AND HANGING THE SCALE



- Place the upper hook through the hole at the top of the scale.
- Put a rope through the upper hook of the scale and hang it from a beam or branch of a tree by tying the rope securely.
- Make sure the dial is at eye level so that the weight is read correctly, and not too high from the ground, to avoid injury to the child in case of accidental fall.
- Be sure there is room for the scale to hang freely.
- Pull down on the scale to make sure it is secure.
- Place the lower hook on the bottom of the scale.

PICTURE 3.3: ADJUSTING THE NEEDLE



Getting ready to weigh a child

- Place the pants on the lower hook
- Then adjust the needle to zero ('0') the screw at the top of the scale in clock wise or anti clock wise direction



Getting ready to weigh an infant

- Place the infant sling on the lower hook
- Then adjust the needle to zero ('0') by turning in clock wise or anti clock wise direction

PICTURE 3.4 PUTTING THE CHILD IN THE PANTS

- Remove the pants from the hook
- Carefully place the child in the pants
- Ask the child to hold the straps for support
- Make sure the straps are in front of the Child's arms



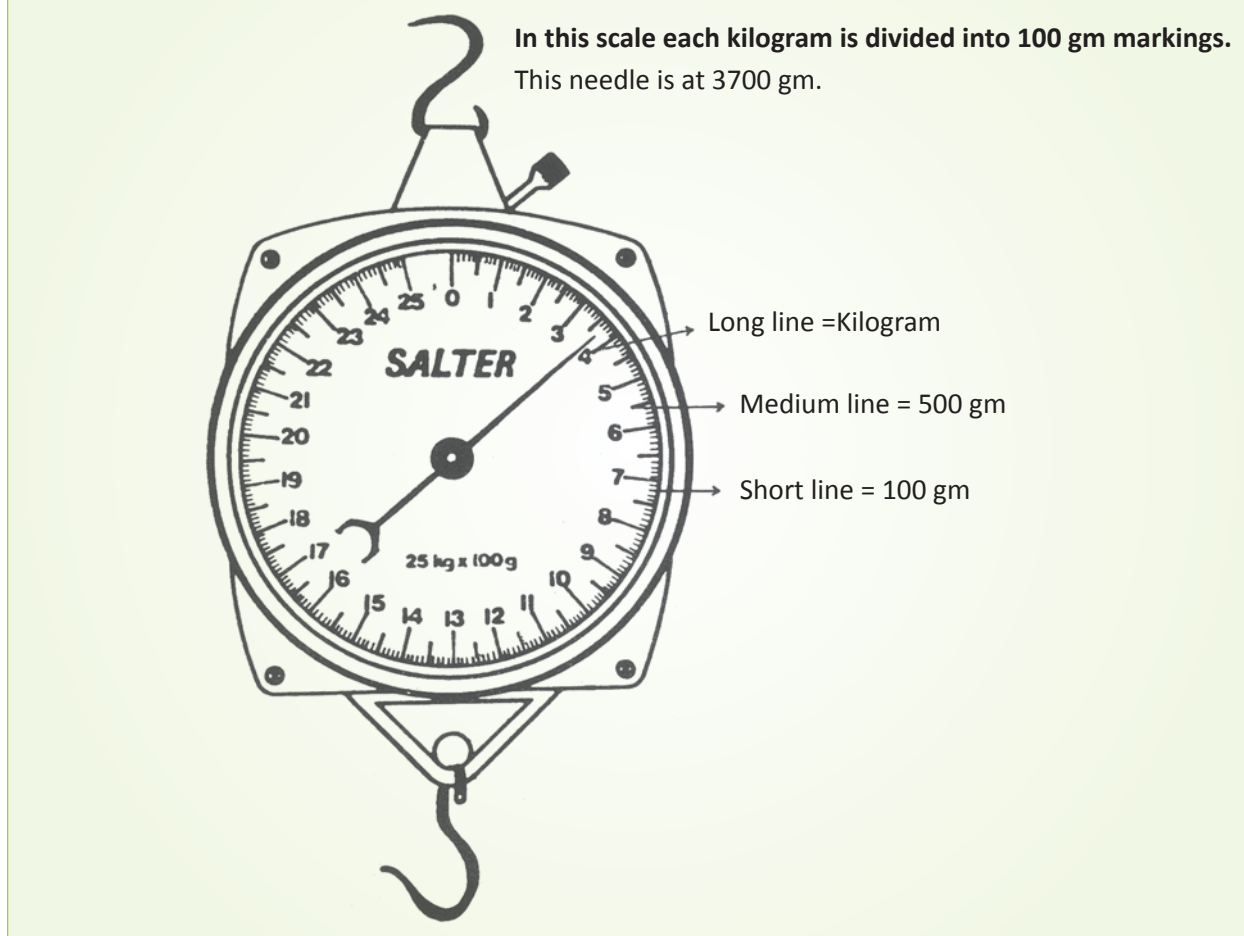
- Hold the child securely under the pants and place the strap of the pants on to the lower hook

PICTURE 3.5 SHOWS WEIGHING THE CHILD OR INFANT



- Make sure the child's feet are not touching the ground and the child is not holding on to anything, other than straps of the sling
- No one should touch the child while the weight is being read
- Ask the mother to stand close by and talk to the child to prevent crying
- Read the weight when the child is calm and the needle stops moving
- Read the weight exactly opposite the scale; Do not read the weight from the sides

PICTURE 3.6 READING THE SCALE



3.2 BAR WEIGHING SCALE

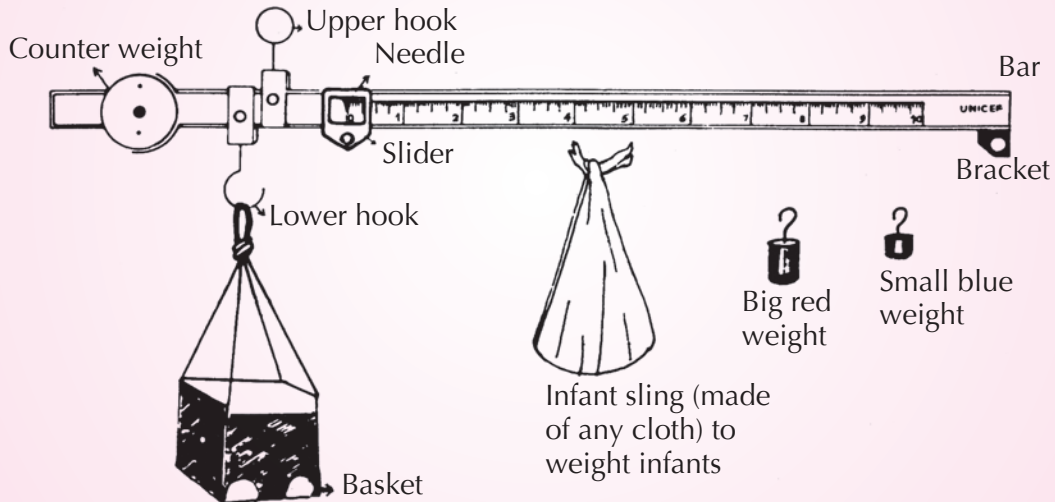
Let us now learn about the Bar Weighing Scale. The Bar Scale is a light metal scale. It is reliable, sensitive and portable and can weigh children up to 20 kilograms.

- 3.2.1** The Bar Scale has two hooks. Hold the scale so that the numbers are right side up. The upper hook is used to hang the scale from a beam or a branch of a tree, and the lower hook is used to hang a basket or sling in which the child is placed for weighing.
- 3.2.2** The Bar Scale is graduated from 0-10 kilograms. There are two types of Bar Scale. In one type of scale, each kilogram is divided into 100 grams divisions and in the other type, each kilogram is divided into 50 grams division. Please check the divisions on the scale you are using (Picture 3.7 and 3.8).
- 3.2.3** Two weights are used with the Bar Scale. The big red weight is always used while weighing children and is attached to the movable slider which has a needle, pointing to reading. The smaller blue weight is only used for children who weigh more than 10 kg. It is attached to the fixed bracket on the right end side of the scale.

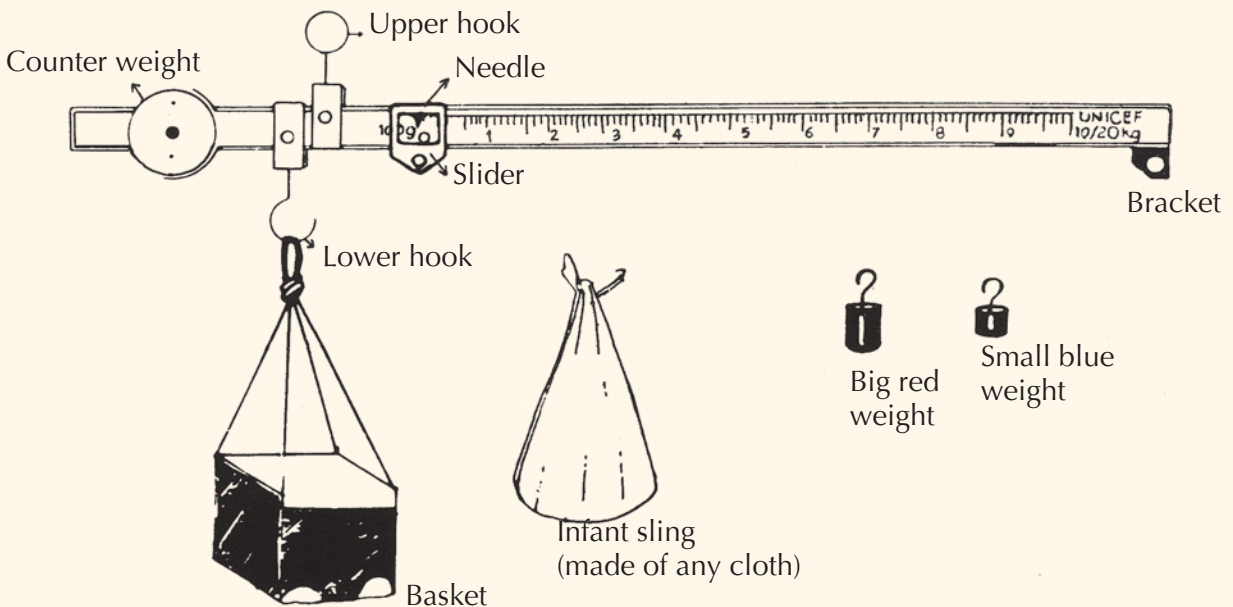
3.2.4 At the left end of the scale is a counterweight with a screw in the centre. This is used for balancing the scale if the scale is not horizontal when the basket or sling is on the lower hook, and the slider is set at zero. The method of weighing and reading the weight of the child with Bar scale is presented in Picture 3.9 – 3.18.

PICTURE 3.7: BAR SCALE WITH 50 GRAMS DIVISIONS

There are two kinds of bar scales. In one type each kilogram on the bar is divided into 50 gram divisions. In the other type each kilogram is divided into 100 gram divisions.

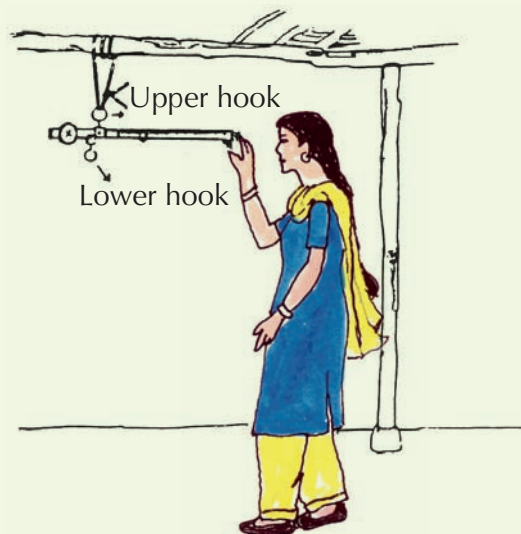


PICTURE 3.8: BAR SCALE WITH 100 GRAMS DIVISIONS



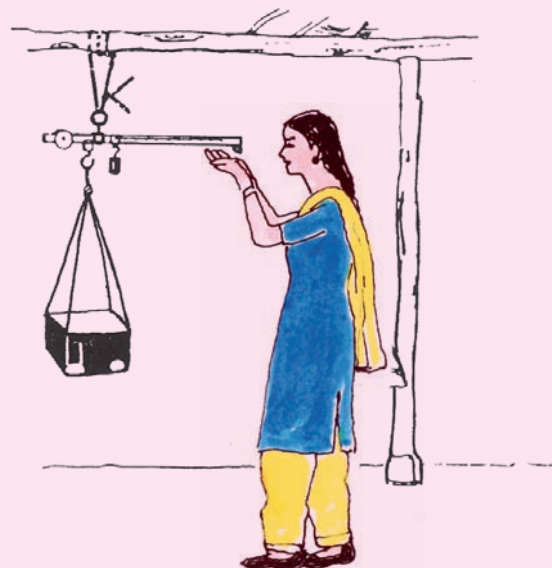
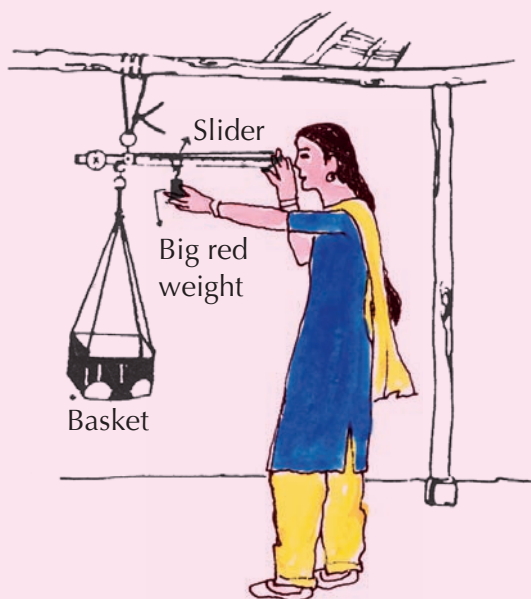
PICTURE 3.9: HANGING THE BAR SCALE

- Put a rope through the upper hook of the scale.
- Hang the scale from a beam or branch of a tree by tying the rope securely.
- Be sure there is room for the scale to hang freely.
- Pull down on the scale to make sure it is secure.
- The scale should be hung at eye level.



PICTURE 3.10: BALANCING THE BAR SCALE

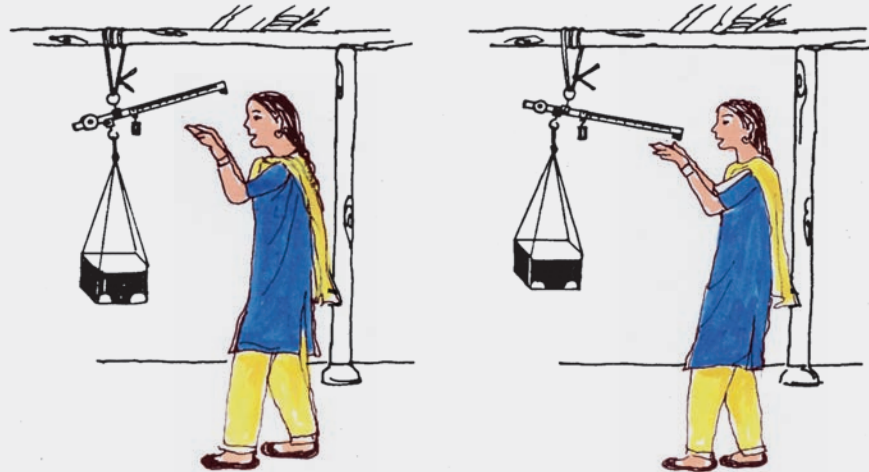
- Place the basket or infant sling
- Hold the end of the bar scale and place the big red weight on the slider.
- Gently slide the slider to the '0' mark and release the end of the bar.
- If the scale is balanced the bar will be horizontal to the floor.



This is balanced!

PICTURE 3.11: BALANCING THE BAR SCALE

- If the scale is not balanced, the bar will be tilting upwards or downwards when the Slider is at '0'.
- Remember the basket or sling must be on the hook while balancing the scale.



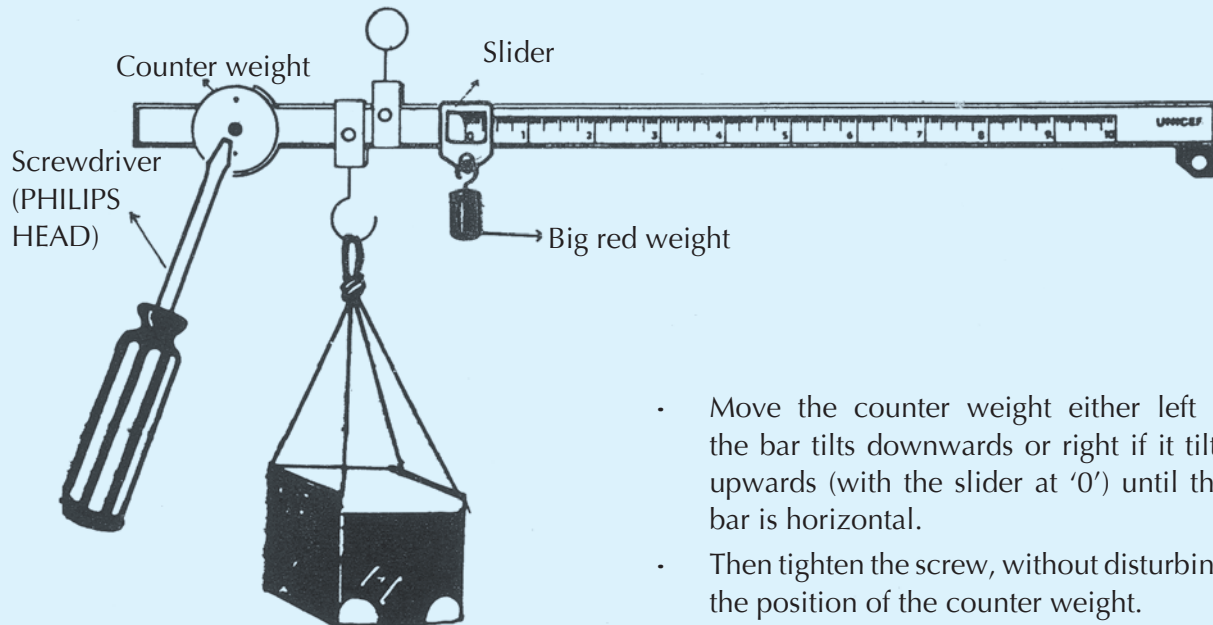
This is not balanced

This is not balanced

The next picture tells you how to correct this problem.

PICTURE 3.12: BALANCING THE BAR SCALE

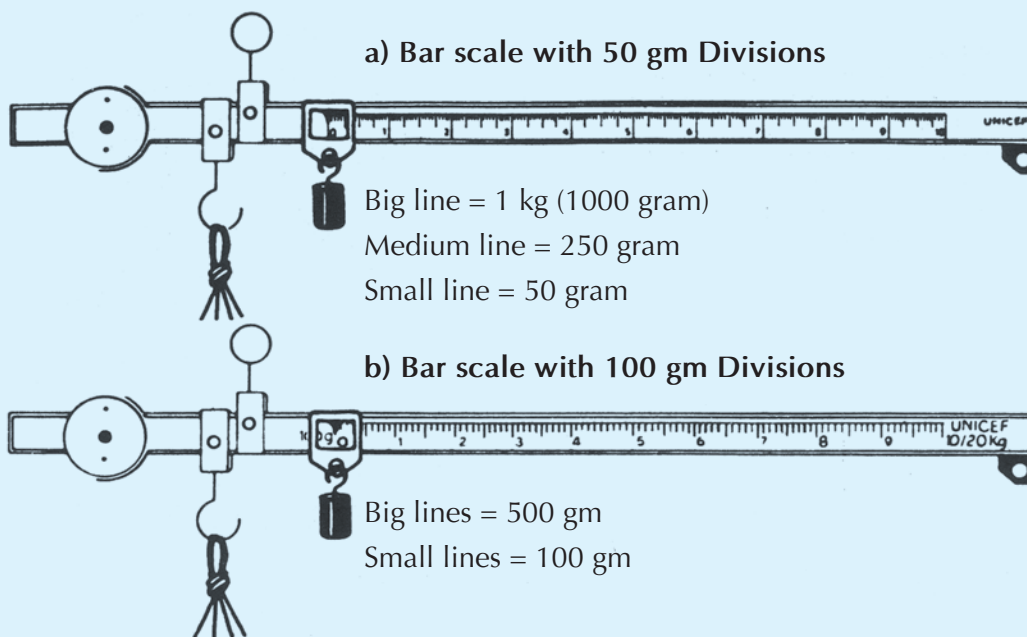
- If the bar is not horizontal or balanced when the slider is at the '0' mark, use the screw driver to loosen the big screw in the centre of the counterweight.



- Move the counter weight either left if the bar tilts downwards or right if it tilts upwards (with the slider at '0') until the bar is horizontal.
- Then tighten the screw, without disturbing the position of the counter weight.
- Reconfirm that the bar is horizontal, after the screw is tightened.

PICTURE 3.13: READING THE SCALE

Both bar scales are divided from 0 to 10 kilograms.



PICTURE 3.14: PUTTING THE CHILD IN THE BASKET

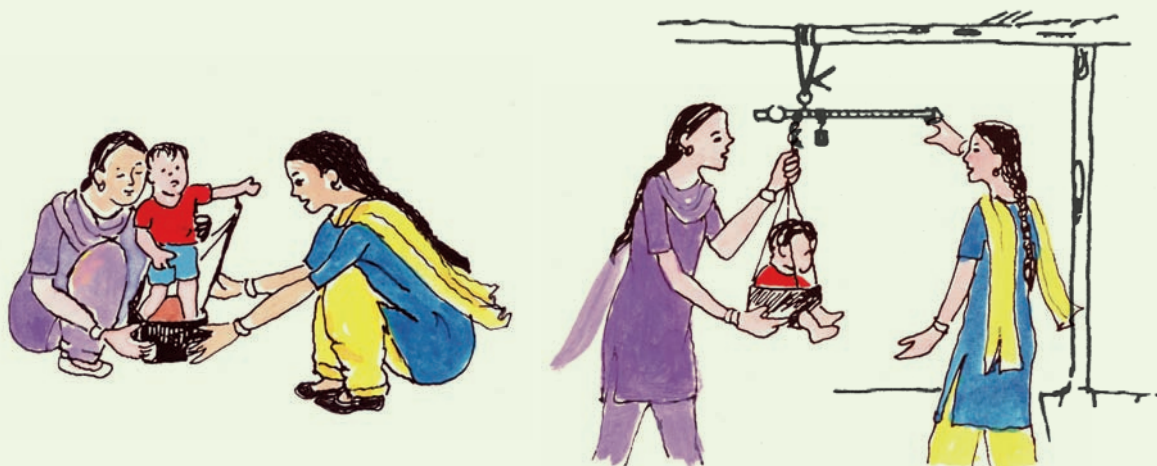
Take the basket off the scale.

Involve the mother in the weighing of her child.

Help the mother place the child in the basket.

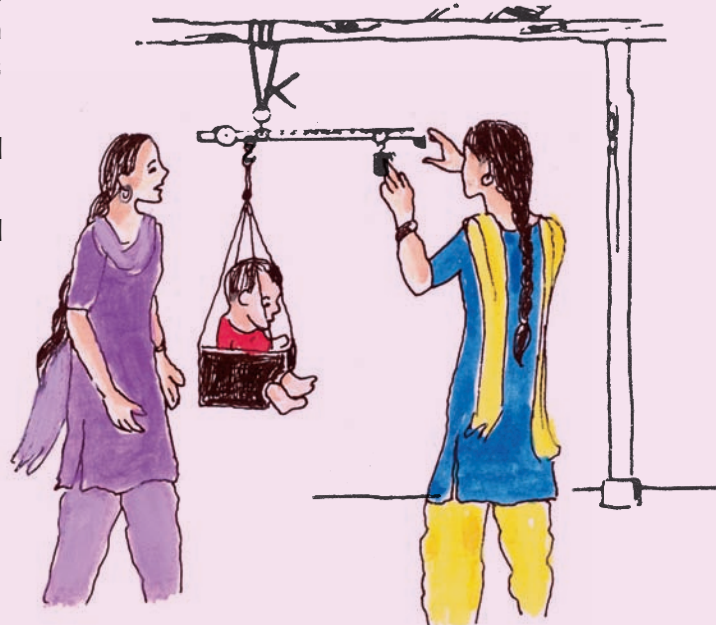
Hold the child securely under the seat and lift towards the scale placing the strap on the hook.

Hold the bar securely so it does not move and injure the child.



PICTURE 3.15: WEIGHING A CHILD

- Use your left hand to move the slider (with the big red weight on it) until the bar is balanced, and is horizontal to the floor.
- Be careful the bar does not fall and injure the child.
- Now remove your hands and read the child's weight.

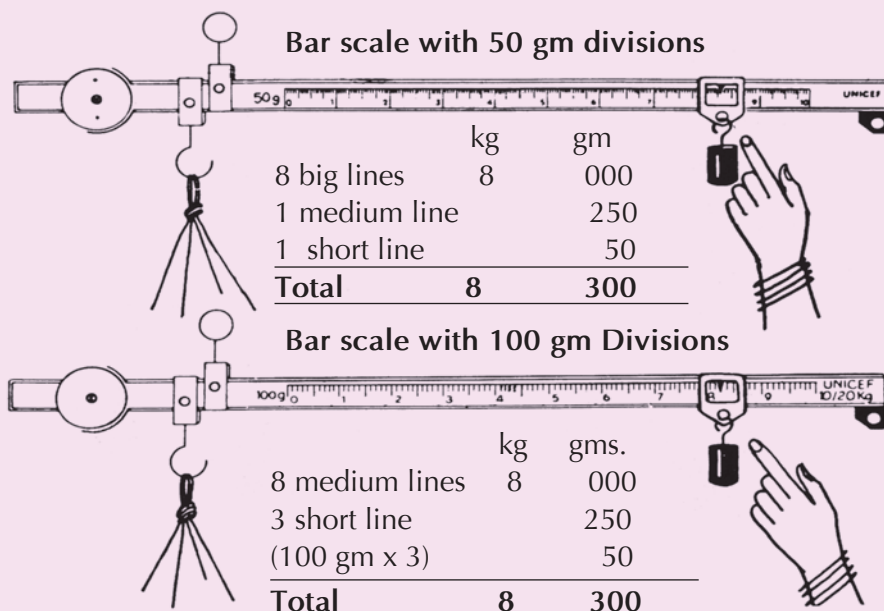


PICTURE 3.16: WEIGHING AN INFANT

- If you use an infant sling, make sure the scale is balanced at the '0' mark, with the infant sling on the hook
- Place the infant in the sling and proceed to weigh the child



PICTURE 3.17: READING THE WEIGHT OF THE CHILD



PICTURE 3.18: WEIGHING A CHILD WHO WEIGHS MORE THAN 10 KILGRAMS

- The child weighs more than 10 kg if the bar tilts upwards, when the slider and big red weight is moved beyond 10 kg
- Place the small blue weight on the bracket at the end of the bar scale.
- Repeat the steps for weighing a child.
- To read the child's weight read the number indicated by the needle on the slider and add 10 kg to it.

The scale is balanced. The needle points to 5 kg



	kg	grams
5 long lines	5	750
Small blue weight	10	000
Total	15	750

This child weighs 15.750 kg.

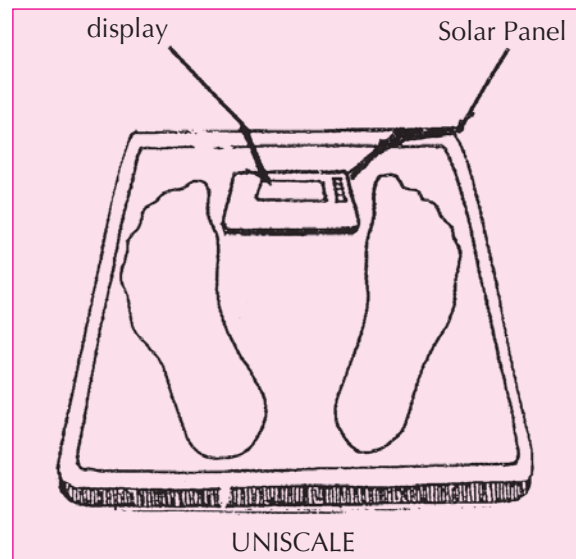
- To remove the child, move the slider back to zero,
- Hold the end of the bar and have the mother take the basket off the hook,
- Then take the child out of the basket.

3.3 TARING SCALE (DIGITAL SCALE)

“Tared weighing” means that the scale can be re-set to zero (“tared”) with the person (mother) just weighed still on it. Thus, a mother can stand on the scale, be weighed, and the scale tared. While remaining on the scale, if she is given her child to hold, the child’s weight alone appears on the scale. Tared weighing has two clear advantages:

- There is no need to subtract weights to determine the child’s weight alone (reducing the risk of error).
- The child is likely to remain calm when held in the mother’s arms while being weighed.
- A taring scale is easy to use, and reliable.

3.3.1 There are many types of scales currently in use. The UNISCALE (made by UNICEF) has the recommended features listed above and is used to demonstrate weighing techniques. It is powered by a lithium battery that is good for a million measurement sessions. The scale has a solar on-switch, and hence it requires adequate lighting to function. It may have footprints mark on the scale to show where a person should stand. This section will describe how to weigh a child using the UNISCALE or a similar model (Pictures, 3.19-3.23).



PICTURE 3.19: A TARING WEIGHING SCALE

3.3.2 There are other type of scales that may be reliable, for example, an electronic baby scale, or a paediatric beam balance that has been calibrated. Children who can stand alone can be weighed directly by making them stand on the platform of the taring scale. Otherwise, the mother can be weighed first; then the mother and child are weighed together and the mother’s weight subtracted from the later to determine the child’s weight. Bathroom scales should not be used as most often they are inaccurate and hence unreliable. Hanging scales are also not reliable when weighing agitated babies.

3.3.3 PREPARATION FOR WEIGHING THE CHILD BY TARING SCALE

- (a) **If the child is less than 2 years old or is unable to stand**, you do tared weighing. Explain the tared weighing procedure to the mother as follows. Stress that the mother must stay on the scale until her child has been weighed in her arms.
- Place the balance on a firm flat ground in adequate light. Pass the finger/foot on the solar panel gently so that the balance gets activated and ‘0’ appears on the screen. Since the scale is solar powered, there must be enough light to operate the scale.

- The mother will remove her shoes and step on the scale to be weighed alone first. She may need to adjust her dress so that it will not cover the display and solar panel of the scale.
 - After the mother's weight appears on the display, tell her to remain still on the scale. Re-set the reading to zero by covering the solar panel of the scale (thus blocking out the light).
 - Then pass the child to mother to hold.
 - Babies should be weighed with minimum clothes.
 - The child's weight will appear on the scale. Be careful to read the number in the correct order (as though you were viewing while standing on the scale rather than upside-down).
 - Record the child's weight.
- (b) If the child is 2 years or older** and can stand still on the scale without support the weighing can be done directly. Explain that the child will need to step on the scale alone and stand very still.
- Explain the mother that child needs to remove outer clothing in order to obtain an accurate weight before undressing the child. A wet diaper, or shoes and jeans, can weigh more than 0.5 kg. Wrap very young children in a blanket/towel to keep them warm until weighing is done. Older children should remove all but wear minimal clothing, such as their underclothes.
 - If it is too cold to undress a child, or if the child resists being undressed and becomes agitated, you may weigh the clothed child, but note in the *Growth Record* that the child was clothed. It is important to avoid upsetting the child so that the length/height measurements can also be taken if needed. If it is socially unacceptable to undress the child, remove as much of the clothing as possible.

REMEMBER:

IF A MOTHER IS VERY HEAVY (MORE THAN 100 KG) AND THE BABY'S WEIGHT IS RELATIVELY LOW (LESS THAN 2.5 KG), THE BABY'S WEIGHT MAY NOT REGISTER ON THE SCALE. IN SUCH CASES, HAVE A LIGHTER PERSON HOLD THE BABY ON THE SCALE.

Example

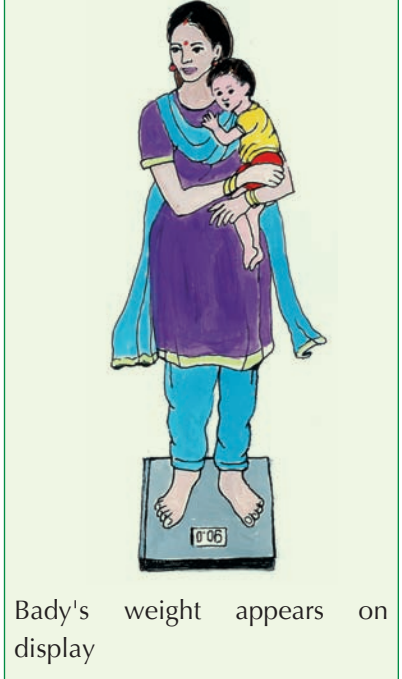
PICTURE 3.20: MOTHER'S WEIGHT ALONE IN THE TARING SCALE



PICTURE 3.21: TARING THE SCALE



PICTURE 3.22: CHILD'S WEIGHT ON THE TARING SCALE



REMEMBER:

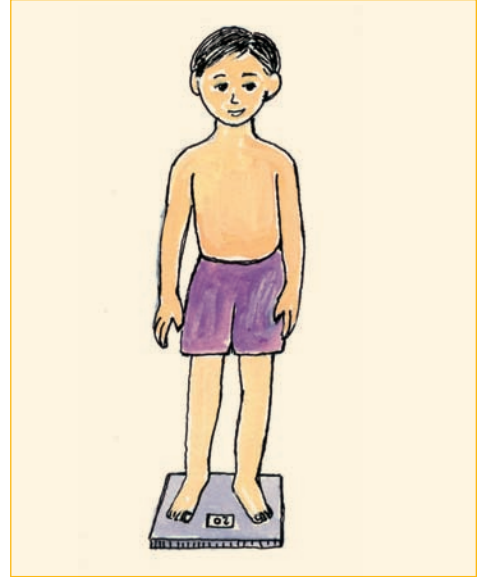
THE SCALE WEIGHS WITH A PRECISION TO THE NEAREST 0.1 KG. PRECISION DESCRIBES THE SMALLEST EXACT UNIT THAT THE SCALE CAN MEASURE. THE ACCURACY OF THE MEASUREMENTS, HOWEVER, IT DEPENDS ON WHETHER THE SCALE IS CALIBRATED.

- (c) **Weigh a child alone.** If a child is 2 years old or older and can stand still alone on the scale, weigh the child alone. Ask the mother to help the child remove shoes and outer clothing. Talk with the child about the need to stand still. Communicate with the child in a sensitive, non-frightening way.
- To turn on the scale, cover the solar panel for a second. When the number 0.0 appears, the scale is ready.
 - Ask the child to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and to remain still until the weight appears on the display.
 - Record the child's weight to the nearest 0.1 kg.

REMEMBER:

IF THE CHILD KEEPS JUMPING ON THE SCALE OR WILL NOT STAND STABLE, YOU WILL INSTEAD NEED TO USE THE TARED WEIGHING PROCEDURE.

PICTURE 3.23: A CHILD'S WEIGHT IS BEING RECORDED ON THE WEIGHING MACHINE.



REMEMBER:

To weigh a child in Salter scale

- Hang the scale securely. The scale should not touch a wall or doorway.
- Scale should be at the worker's eye level.
- Adjust the scale to zero with the basket, pants or sling on the lower hook, at the beginning of each weighing session.
- Take the child's weight with the minimum of clothing, without shoes.
- Read the weight to the nearest 100 gm
- Check the accuracy of the Salter (dial) weighing scale every month with a standard weight (5 kg weight is recommended). You can borrow a standard weight from a shopkeeper in your village, for the purpose.

EXERCISE-3

Practice the following individually or in small groups:

1. Identify the scale parts, and discuss how each scale works, and how to read the scale. Read various weights 6.1, 6. 2, 17.8 etc. on the scale.
2. Practice hanging the scale securely, checking zero error and weighing inanimate objects like books.
3. Practice weighing young children especially children from birth to 1 year, 1-2 years & 2-5 years. Practice until you are confident that you can weigh each child properly.

CHAPTER - IV

PLOTTING WEIGHT ON THE GROWTH CHART

After reading this chapter and completing the exercises suggested at the end of the chapter, the reader will be able to:

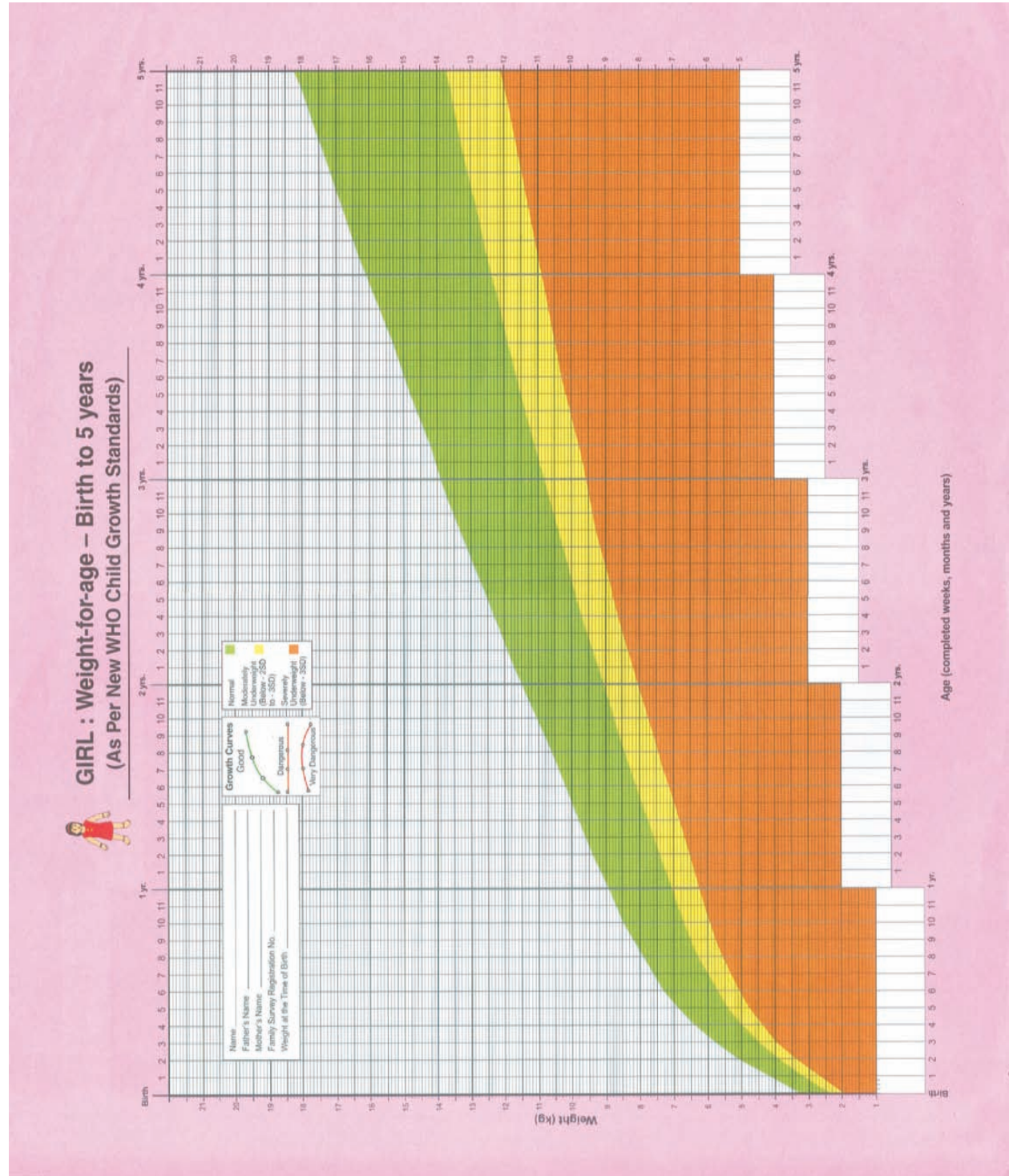
1. describe the growth chart, by explaining the meaning of the vertical lines and the horizontal lines, as well as identifying the three coloured zones representing nutritional grades;
2. describe and demonstrate how to properly -
 - a) fill in the information box on the growth chart;
 - b) fill in the birth month and year and write it in the first box of the age column;
 - c) fill in the intervening month and year columns up to five years of age;
3. demonstrate how to accurately plot weights to the nearest 100 gm; and
4. draw the growth curve by joining the plotted weights on the growth chart with a line.

WHAT IS A GROWTH CHART

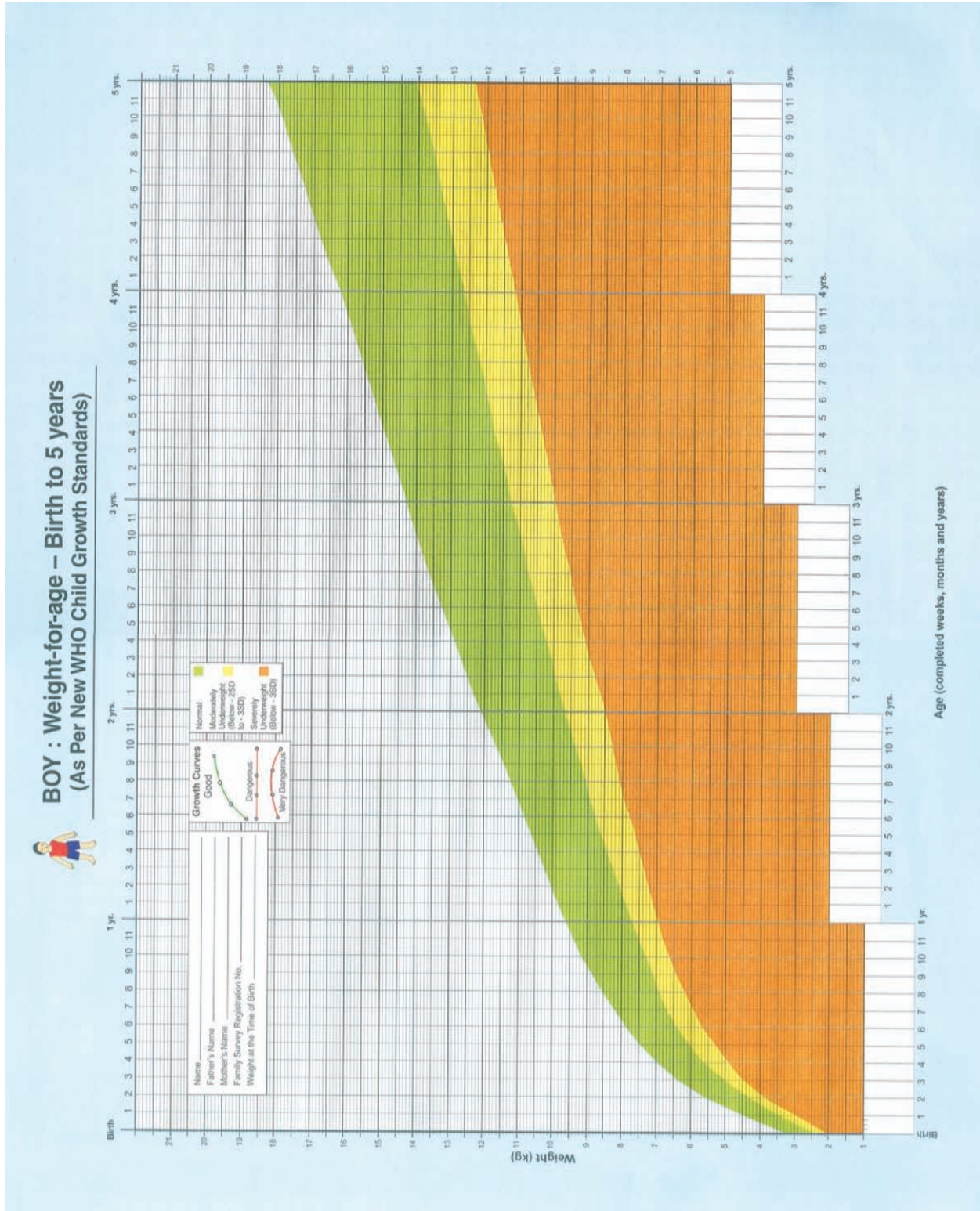
We will now discuss the third step in growth monitoring, that is plotting the recorded weight of the child to her/his growth chart.

- 4.1 Growth monitoring chart register is a part of the Mother & Child Protection (MCP) Card Package, which also includes a Mother & Child Protection Card and a Guide Book. Growth monitoring chart register is for recording the weight of children as per their age up to 5 years. The register contains weight-for-age growth charts based on new WHO Child Growth Standards. As per the new Standards, there are separate growth charts for girls and boys, as they have different weights and lengths beginning at birth and grow to different sizes related to their age. The first half of the register has growth charts for girls with 'pink border' and the second half is for boys with the 'blue border'. Each set of charts is followed by pages marked as "Index" for keeping the record of growth charts maintained in the register.
- 4.2 A growth curve is formed by joining the plotted points on a growth chart. Direction of the growth curve indicates whether the child is growing or not and is more important than the actual weight of the child at a given point of weighing. On each growth chart, there are 3 printed growth curves. These are called Reference Lines or Z Score Lines and are used to compare and interpret the growth pattern of the child and assess her/his nutritional status. The 1st top curve line on the growth chart i.e upper border of green band is the median which is, generally speaking, the average. Second line is the junction of green and yellow bands and 3rd line is the junction of yellow and orange bands. Weight of all normal and healthy children, when plotted on the growth chart, fall above 2nd curve (green band); weight of moderately underweight children fall below the 2nd curve to 3rd curve (yellow band); and weight of severely underweight children fall below the 3rd curve (orange band).
- 4.3 Equipment and tools required for growth monitoring are weighing scale, Mother & Child Protection Card (Annexure-II) and Growth Monitoring Chart Register. As already discussed, growth chart is a tool for assessing and monitoring the growth of a child.
- 4.4 Picture 4.1(a) and 4.1(b) shows the new WHO growth chart used in the ICDS programme for girls and boys respectively. Observe the growth charts carefully. On the extreme top left observe a box. This is the information box where the child's name, father's and mother's name, family survey register number and weight at the time of birth are to be filled. Each growth chart has two axes. The horizontal line at the bottom of the chart is the X Axis. This is for recording the age of the child for five years and is called 'month axis'. The vertical line at the far left of the chart is the Y Axes. This is for recording the weight of the child from birth onwards and is called 'weight axis". The horizontal lines from bottom to top of the growth chart reflect the weights from 0 to 21 kg at 100 gm interval.

PICTURE 4.1(a): A NEW WHO GROWTH CHART FOR GIRLS



PICTURE 4.1 (B): A NEW WHO GROWTH CHART FOR BOYS



The vertical lines from left to right of the chart reflect age from 0 to 5 years at one month interval. Look at the vertical line on the extreme left of the growth chart. Along this line are weights written in kilograms, 1, 2, 3... 21 kg. The bold line in between the kilograms indicates 500 grams and the thin line 100 grams. At the bottom of the growth chart are five steps, each of which represents one year in the child's life. Each step has been further subdivided into boxes to write the twelve months of the year. The first box on the extreme left has a thick dark outline. This is for the birth month and year of the child.

4.5 As seen from the picture of the growth chart, the month axis has five steps representing 1-5 years. Each box contains 12 small squares representing 1-12 months i.e. each small square represents 1 month. On the whole, 'month axis' of each growth chart has 60 squares and can be used for a child up to 5 years or 60 months. Age is recorded in completed weeks/months/years. It is recorded in completed weeks only for a child below 1 month. Small lines dividing the first month into four weeks has been drawn in the first square which need to be drawn upward while plotting weight depending on the completed week and weight of the child. On the weight axis, lines are marked for recording weight in kilograms and grams. Each thick extended line represents 1 kg each line extended from a small square represents 500 grams and the very thin lines represent 100 grams. White rectangles below the 'month axis' are for writing month and years as per the date of birth of the child. On each visit, weight of the child taken is plotted, corresponding to the relevant rectangle.

4.6 USES OF THE GROWTH CHART

Growth monitoring and promotion of young children is an important responsibility of an AWW. Growth monitoring means keeping a regular track of the growth and development of the child with the help of key nutrition indicators related to their age like weight or height. Plotting the child's weight, taken every month or quarter, on the growth chart and joining these weight points with a line to form the growth curve, makes the growth of the child visible. The growth curve is a useful tool in many ways and enables AWW /Supervisor/CDPO/ANM/MO to:

- Detect early growth faltering and prevent underweight;
- Identify underweight children who need special care and feeding at home, in addition to supplementary nutrition received at the AWC;
- Identify severely underweight children who need special care and feeding at home and to provide referral advice, in addition to Micronutrient-fortified food/Energy-dense food supplementation at the AWC;

- Identify causes of weight loss or lack of growth i.e., illnesses such as fever, diarrhoea and acute respiratory infection; inadequate or insufficient diet; mother's illness; etc., and take corrective and timely action; and
- Educate, counsel and support mothers and families for optimal nutrition, health care and development of their children.

4.7 FILLING UP THE GROWTH CHART

Let us now learn how to fill up a growth chart. In the ICDS programme, the growth charts (Pink and Blue) have been provided in the form of a register which has an index at the end of the growth chart register. Pink growth charts are to be used for girls and the blue ones for boys.

Described below are steps in filling up a growth chart.

a. Filling up the index of growth charts

In the index of the growth chart register (as mentioned below), write down the name of the child and other relevant information such as Serial No, Name of the Child, Date, Month and Year of Birth D/M/Y, Birth Registration No. Father's Name, Mother's Name, Family Survey Registration No, and Page No. of Growth Chart in GM Register.

Index of Growth Charts							
Serial No	Name of the Child	Date, Month and Year of Birth D/M/Y	Birth Registration No.	Father's Name	Mother's Name	Family Survey Registration No	Page No. of Growth Chart in GM Register

Now, turn to an empty growth chart, and choose appropriate growth chart (Pink or Blue) according to sex of the child.

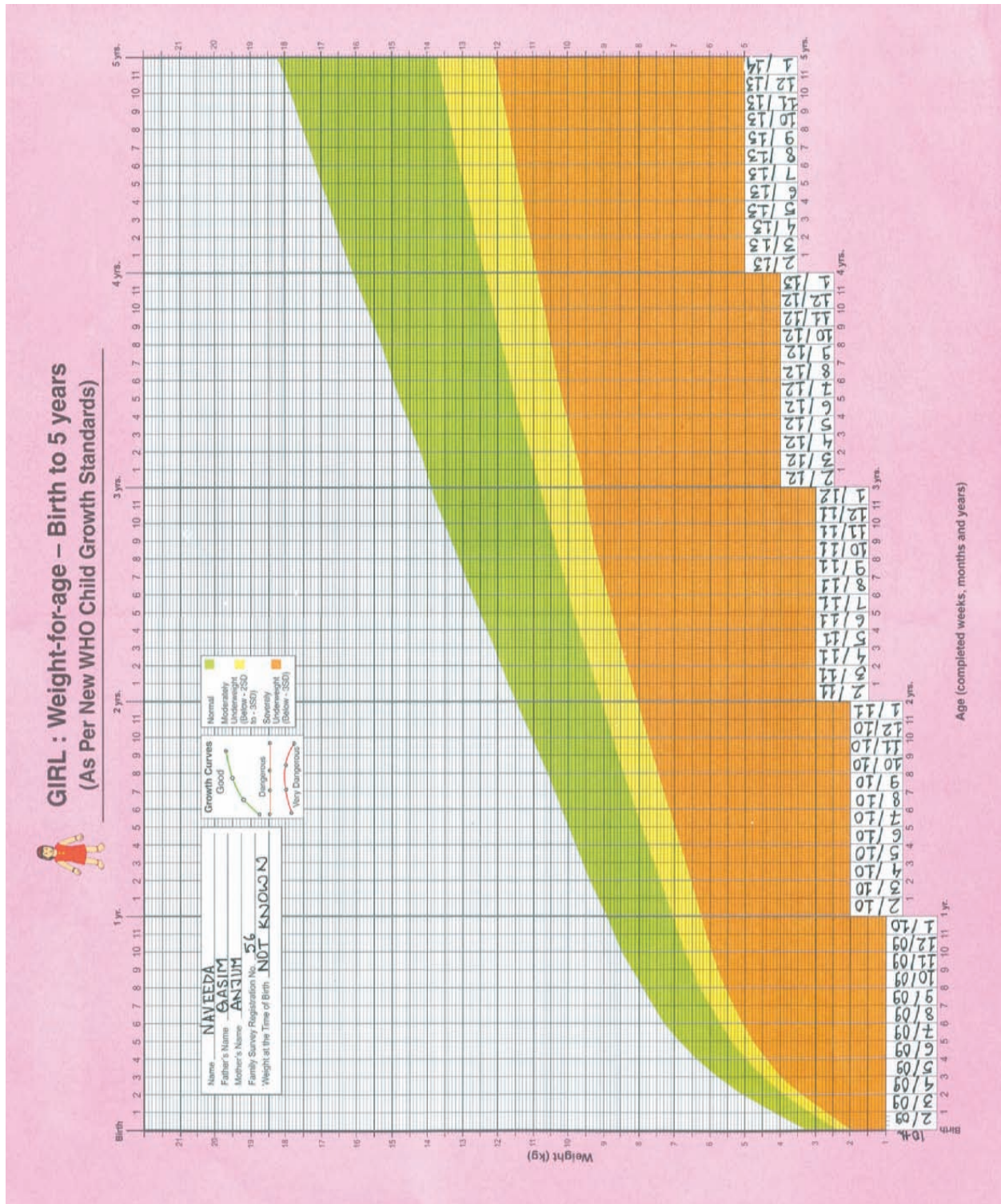
b. Filling up the information box

Write down the required information in the information box on the growth chart i.e name of the child, father's name, mother's name, family survey registration number and weight at the time of birth.

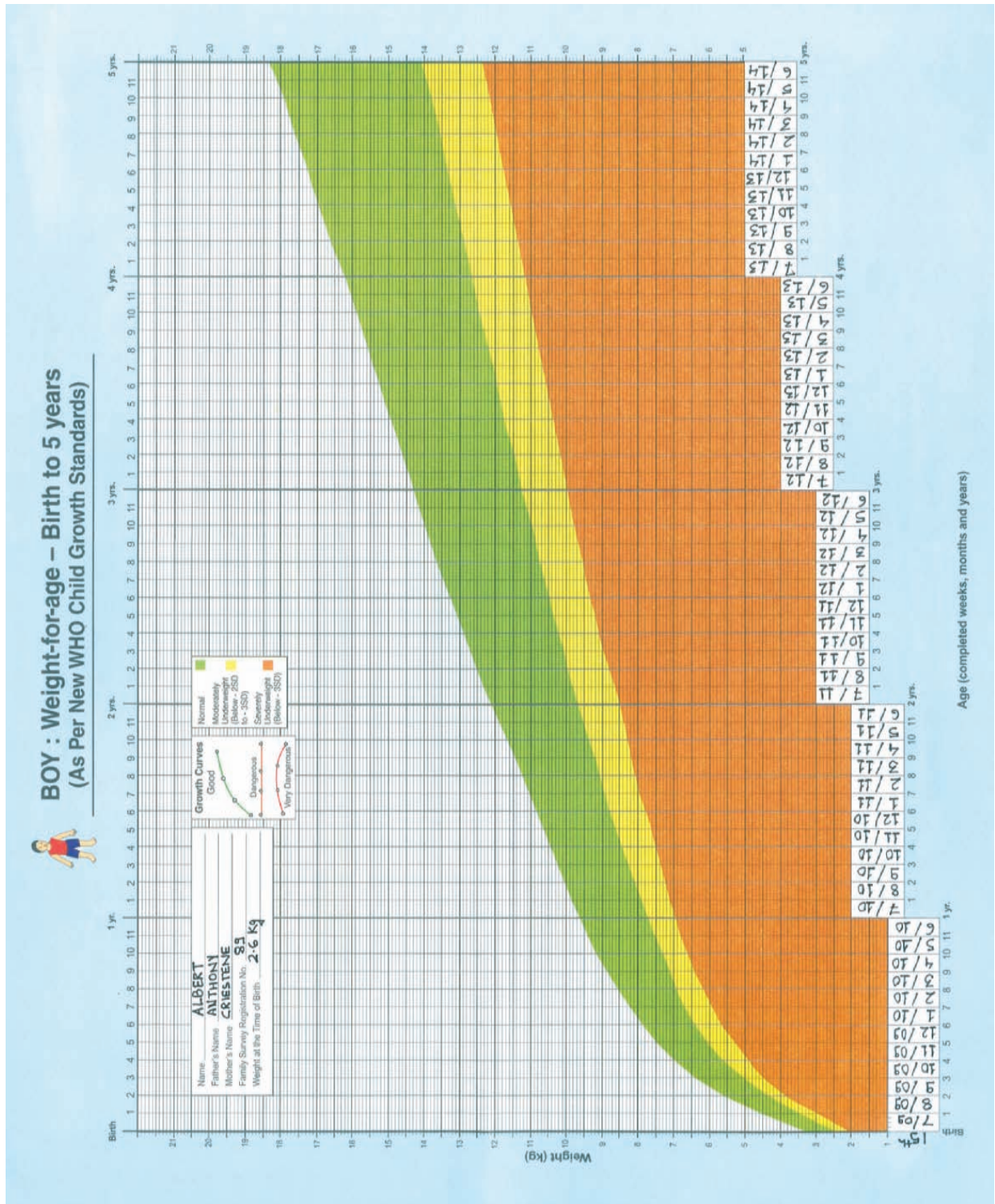
c. Filling up the month and year column

Write the month and year during which the child was born in the first white rectangle at the bottom of the first column from the left hand side e.g. Naveeda was born on 10 February 2009, you will write February 2009 or 2/09 and 10th on the margin as shown in the picture 4.2 (a). However, it is preferably to write only 2/09 for February 2009. In the subsequent boxes, you will write the month and year in sequence i.e. March 2009 (3/09), April 2009 (4/09) and May 2009 (5/09), until you reach the last small box in which you will write January 2014 (1/14).

PICTURE 4.2 (A): A NEW WHO GROWTH CHART FOR GIRLS SHOWING INFORMATION IN THE INFORMATION BOX AND MONTH AND YEAR COLUMN



PICTURE 4.2 (B): A NEW WHO GROWTH CHART FOR BOYS SHOWING INFORMATION IN THE INFORMATION BOX AND MONTH AND YEAR COLUMN



REMEMBER :

THE CHILD'S BIRTH MONTH AND YEAR WILL BE WRITTEN IN THE FIRST THICKLY OUTLINED BOX AND DATE OF BIRTH ON THE MARGIN.

4.8 PLOTTING WEIGHT ON THE GROWTH CHART

- Use pink border chart for girls and blue border chart for boys.
- Fill up the 'Information Box' on the left hand side of each Growth Chart before using it [Picture 4.2 (a)].
- Do the plotting with help of a HB pencil.
- Write the month and year during which the child was born in the first white rectangle at the bottom of the first column from the left hand side e.g. Naveeda was born on 10 February 2009, you will write February 2009 or 2/09 and 10th on the margin as shown in the picture 4.2(a). However, it is preferably to write only 2/09 for February 2009. In the subsequent boxes, you will write the month and year in sequence i.e. March 2009 (3/09), April 2009 (4/09) and May 2009 (5/09), until you reach the last small box in which you will write January 2014 [Picture 4.2 (a)]. Plotting for 60th month i.e. February 2014 will be done on the last bold vertical line.
- Identify the 'month box', which identifies the present age of the child in completed weeks or months.
- Plotting has to be made at the junction of vertical line (not between vertical lines) of the identified 'month box', and line corresponding to weight.
- Plotting has to be done on the lines for completed weeks/months. Weekly plotting will be restricted to only initial 1st month from the birth and thereafter plotting will be done on completed months. For example, when Naveeda was weighed on 9th day her weight was plotted on the 1st week line and not between the lines for 2nd and 3rd weeks. Similarly, when she was weighed at 6½ months old, weight of Naveeda was plotted on the line for completed months i.e. 6 months and not between the lines for 6 and 7 months. While calculating days in order to determine completed week, the day of birth of the child and the day of weighing should be included for an example the age of Naveeda born on 10-09-2009 and weighed on 18-09-2010 is 9 days and thus completing a week. Similarly, in order to determine completed month, an easy way may be adopted for an example; a child like Naveeda who has born on 10th September would complete her months on 9th of every month. In case of a child born on 29th, 30th, 31st January would complete her 1st month on the last day of February (Picture 4.3) and 2nd month would be completed one day before the date of birth ie 28, 29 and 30 respectively and calculation of the completed months will be done in the preceding months accordingly. The child born on 1st of any month would complete her month on the last day of respective month and so on during all the years.
- For plotting on completed weeks, small lines drawn in the birth month need to be followed/extended upward vertically (Picture 4.3) till the plotting of actual weight of the child.

- Identify the horizontal line which indicates the present weight of the child to the nearest 0.1 kg e.g. 6.2 kg.
- Follow this horizontal line on the 'weight axis' towards right to the point where it intersects with the line which is extended from the vertical line from the 'month box' indicating the present age of the child.
- Write the weight taken to the nearest 100 grams below the 'month box', which indicates the present age of the child.
- Put a dot on the line where the two lines intersect. Draw a circle around the dot, so as to know the position of the plotted point for weight-for-age.
- Do not plot any point in the space between the two vertical lines on a Growth Chart.
- Record weight-for-age of the child by plotting a point on the Growth Chart, each time she/he is weighed.
- Connect the points plotted for two or more months/weight, with a straight line to form the Growth Curve and observe trends (Picture 4.4).
- Whenever there is a gap in monthly weighing or no information available about weight then that gap in growth chart needs to be joined with a dotted line (Picture 4.4).

4.8.1 During discussions held with State Government Officials as well as trainers and ICDS functionaries, the issue of writing day of weighing in the growth chart for proper growth monitoring of children emerged. It may be clarified that state is free to do this modification in the growth chart. It may be also mentioned that if any State Government wants to make any modification/ innovation in respect of the new growth chart, they may do so but the same needs to be communicated to NIPCCD for wider dissemination.

REMEMBER:

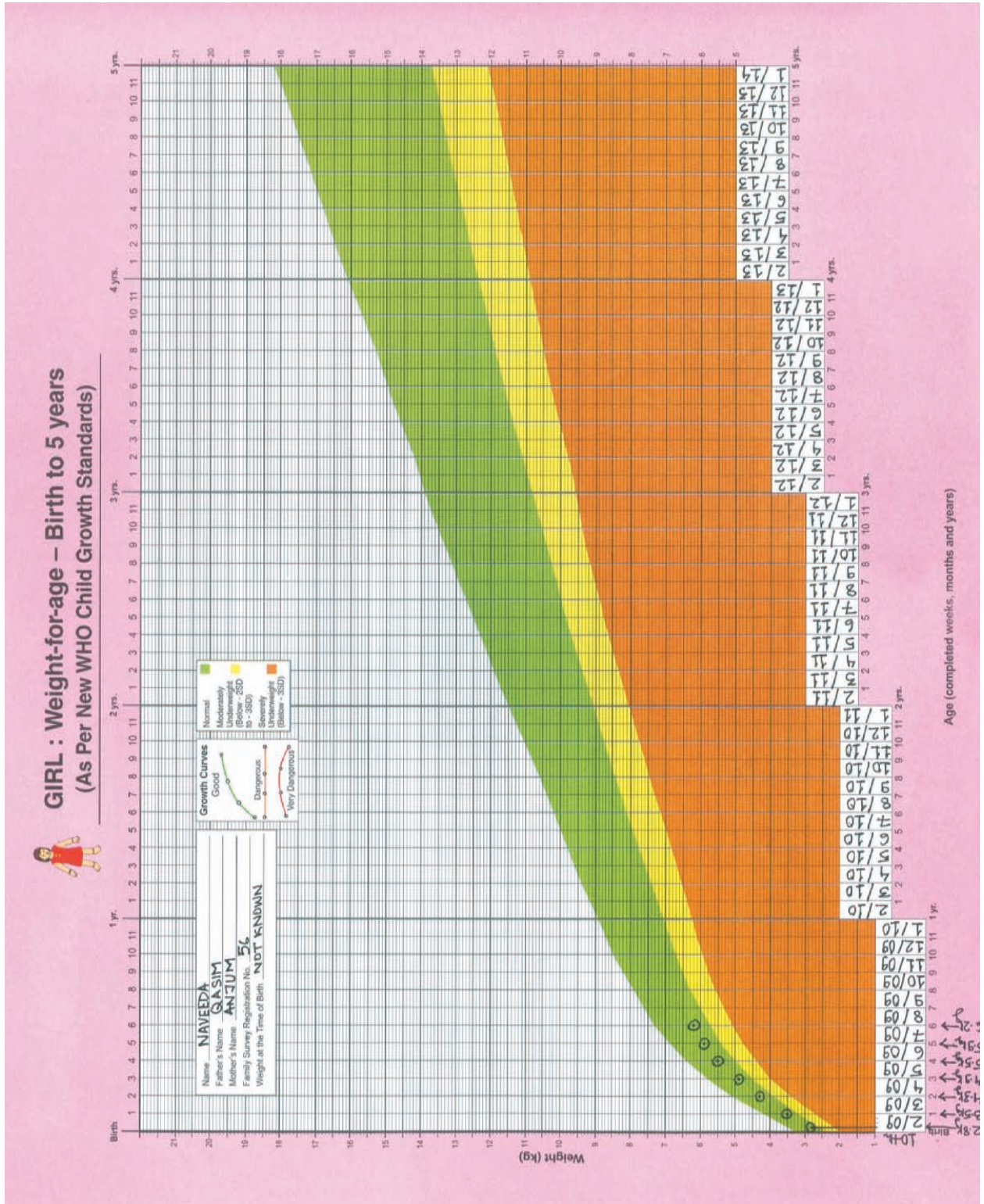
THE WEIGHT SHOULD BE PLOTTED AT THE INTERSECTION OF TWO LINES (WEIGHT LINE AND AGE LINE) AGAINST THE MONTH AND YEAR IN WHICH THE WEIGHT WAS TAKEN. WRITE THE WEIGHT BELOW THE BOX OF THAT MONTH. JOIN THE PLOTTED WEIGHTS TO MAKE THE GROWTH CURVE.

REMEMBER:

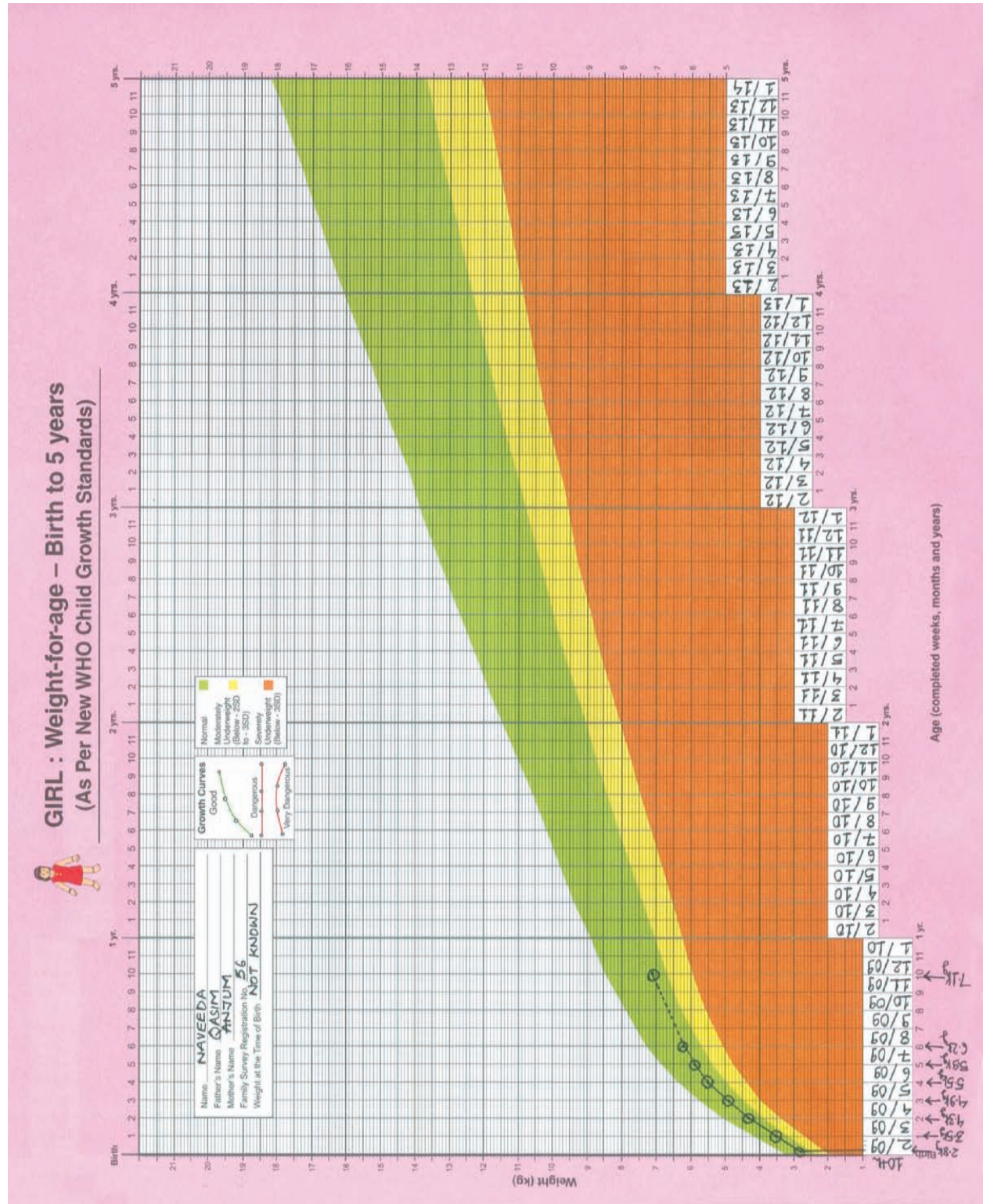
By plotting weight on the growth chart it:

- PROVIDES A VISUAL RECORD OF THE GROWTH PATTERN OF A CHILD.
- ACTS AS A TOOL/AID FOR HEALTH AND NUTRITION EDUCATION TO MOTHERS.
- DETECTS GROWTH FALTERING AND WEIGHT LOSS IN ITS EARLY STAGES.
- DETERMINES THE GRADE OF WEIGHT OF CHILD.
- IDENTIFIES BENEFICIARIES FOR SUPPLEMENTARY NUTRITION.

PICTURE 4.3: A NEW WHO GROWTH CHART SHOWING PLOTTING OF WEIGHT



PICTURE 4.4: A NEW WHO GROWTH CHART SHOWING A GROWTH CURVE AND DOTTED LINE



EXERCISE-4

Fill in the blanks

The steps in filling the growth chart are

- (i) In the _____ of the growth chart register fill in _____.
- (ii) Fill in the _____ on the growth Chart according to sex of child.
- (iii) Find out the Child's _____
- (iv) The _____ month and year goes in the _____ monthly box, along the bottom of the chart.
- (v) Fill in all _____ columns through 5 years.
- (vi) Weigh the child _____ .
- (vii) Plot the _____ correctly by :
 - a) placing a dot on the _____ of the X (completed months) and Y (Weight) axis.
 - b) _____ the dot to make it visible.
 - c) Use a _____ to avoid a messy chart.
- (viii) Connect the monthly weighing with a _____ so that these lines become the _____ curve.

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

EXERCISE-5

(A) Fill in the information box of the growth chart based on the following information :

Name	Tanya
Father's Name	Dinesh
Mother's Name	Suman
Family Survey Registration No.	344
Weight at the time of Birth	3.5 kg

(B) To find out the correct birth month of Tanya, you asked Suman when Tanya was born. She said one week after Republic Day in 2006.

- 1) What month and year was Tanya born in?
- 2) How did you know?

(C) Which colour chart you will select for Tanya?

(D) Fill in the birth month and year in the first box.

(E) Fill in each box with subsequent months for 5 years.

(F) How old is Tanya (in completed years and month)

- 1) On 6th December 2008
- 2) On 1st October 2009

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

EXERCISE 6

On 26th of February 2009, Jenny gave birth to a baby girl Jancy. AWW goes to Jenny's house same day and weighed the child. She was 2.5 kg.

- (A) Child name Jancy
 Mother's name Jenny
 Father's name John
 Family Registration 72
- (B) Calculate the age of the Jancy (in days/completed weeks) and plot these weights on growth chart of Jancy. Jancy's weight on subsequent days were

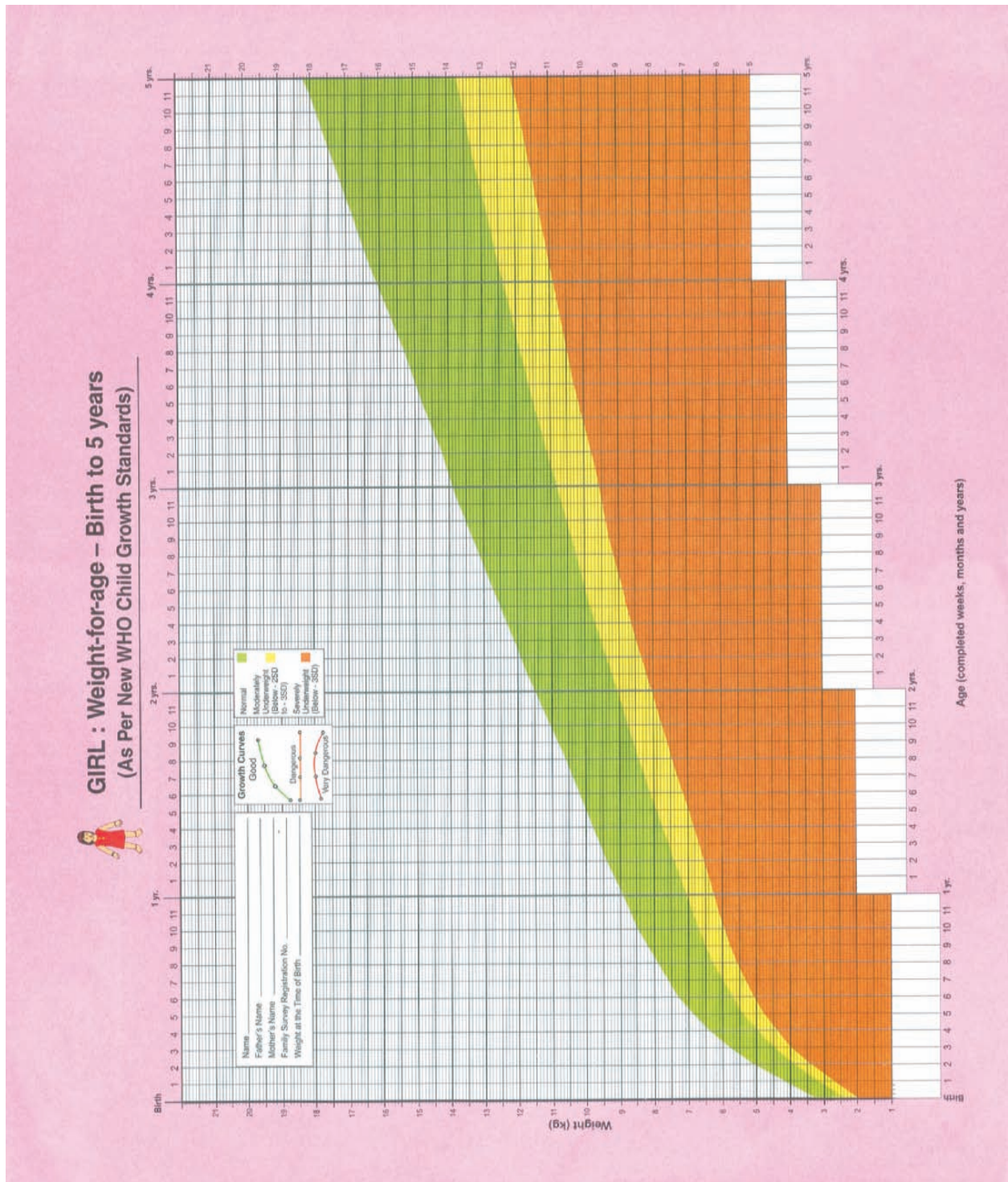
Date of weighing	Weight	Age of child (in days/completed weeks as on day of weighing)
(i) 2nd March' 09	2.6 kg	-----
(ii) 4th March' 09	2.6 kg	-----
(iii) 6th March' 09	2.7 kg	-----
(iv) 13th March' 09	2.9 kg	-----
(v) 20th March' 09	3.1 kg	-----

- (C) Comment on the trend of curve.

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

BLANK GROWTH CHART FOR JANCY (EXERCISE 6)



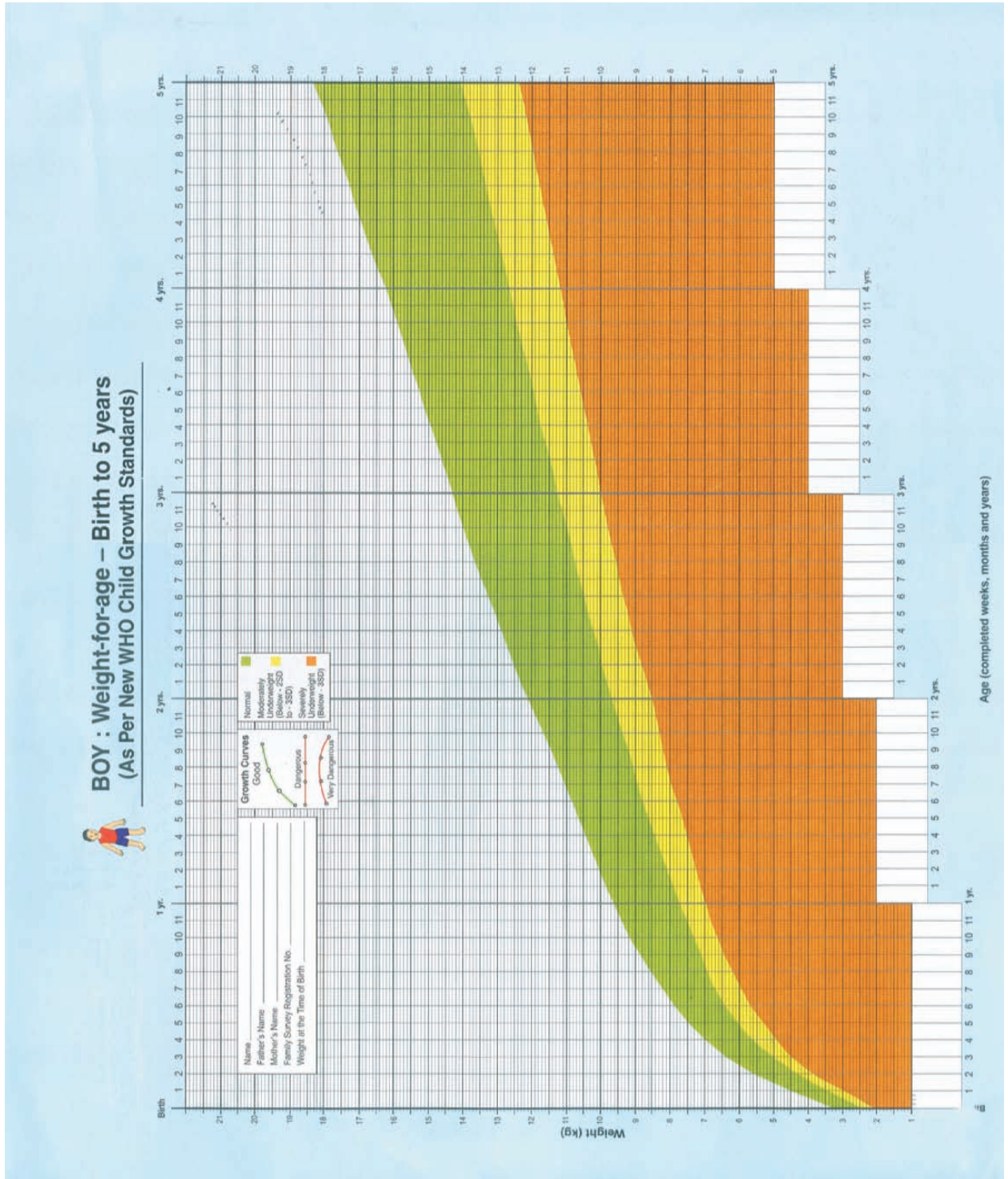
EXERCISE-7

- (A) Rekha came to your village in mid April 2006. You immediately went to meet her. Since Rekha is getting ready to go out, you invited her to come to the AWC with her son, Aashish. The next day, Rekha comes to the AWC. You enquire about her family members and tell her that you want to start a Growth chart for her son, Aashish. Her husband's name is Sudarshan. The family registration no. is 48.
- 1) Fill in the information box of the growth chart.
- (B) When you asked Rekha how old her son was, she said he was one year old. How would you find his month of birth?
- _____
- _____
- (C) When you asked her, Rekha said he was born fifteen days before Holi was celebrated last year.
- 1) What month and year was that and how did you find out? Please indicate the date of birth also.
- _____
- 2) Which colour chart you will choose to fill _____
- 3) Fill in the monthly boxes of the growth chart for 5 years.
- 4) How old is Aashish on 14 April 2006 (in completed years and months)?
- _____
- 5) What would have happened if you took the information that Aashish was one year old and put his birth month as April 2005 and date 15th April.
- _____
- _____
- (D) Aashish was weighed at the AWC on 14th April 2006. He weighed 7 kg.
- 1) Plot this weight on his growth chart by placing a dot where 7 kg and one year and one month on X axis intersect.
- (E) Aashish's weight on 10 May 2006 was 7.4 kg. Plot this weight on the growth chart. Connect the weight plotted in April and May with a line.
- (F) Aashish's weight on 13 June 2006 was 7.8 kg. Plot this weight on the growth chart. Connect the weight plotted in May and June.

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

BLANK GROWTH CHART FOR AASHISH (EXERCISE 7)



CHAPTER - V

INTERPRETING GROWTH CURVE

After reading this chapter and completing the exercises suggested at the end of the chapter, the reader will be able to:

1. recognise and describe a healthy upward growth curve; recognise and describe a faltering growth curve; recognise and describe a declining growth curve;
2. describe why the growth curve is the more important indicator of a child's current health than his weight grade;
3. identify children who need prompt attention using both growth curve and weight grade information; and
4. to understand the clinical signs.

After plotting weight and joining dots (points) on the growth chart to form a growth curve, interpreting or reading the growth curve is the fourth step in growth monitoring.

INTERPRETING GROWTH CURVE

When weight points plotted at different intervals are joined with a line, we get a Growth Curve. Depending on the pattern of monthly growth of a child, the direction of the growth curve may be upward, flat or downward. An upward growth curve indicates that the child is healthy, gaining weight and is growing. However, it is not only an upward curve which is important, but also a healthy upward curve, as a result of adequate weight gain each month. Whenever the weight gain is not sufficient as per the age of the child, then the growth curve is either flat or downward.

5.1 STEPS IN INTERPRETATION OF GROWTH CURVE

- Plotted point for weight-for-age helps in assessing the nutritional status of the child.
- Note the position of the plotted point with reference to printed Growth Curves.
- Interpret the position of the plotted points to identify normal growth or growth problems.
- If plotted weight of a child falls much above the 1st curve, the child has a growth problem, which can be overweight or obesity. This is better assessed from other indicators. Refer the child to the health centre.
- If plotted weight-for-age of a child falls exactly on the 1st or 2nd or 3rd printed growth curve line, then the child is in the less severe category of under weight e.g. plotted point on the 2nd curve line indicates that the child's growth is normal and she/he is not moderately underweight, whereas plotted point below the 2nd curve line indicates that the child is moderately underweight. Similarly, plotted point on the 3rd curve line indicates that the child is moderately underweight and she/he is not severely underweight, whereas plotted point below the 3rd curve line indicates that the child is severely underweight.
- If plotted weight-for-age of a child falls on the green band, then the child's growth is normal; if it falls on the yellow band, child is moderately underweight, and if the plotted weight is on the orange band, the child is severely underweight.
- Assess the nutritional status of the child as per the plotted weight-for-age, as given in the box below.

Position of the Plotted Point	Nutritional Status
Plotted point is	
Exactly on or just above the 1st curve(or)	
Between the 1st & 2nd curve	Child's growth is normal
Exactly on the 2nd curve	
Plotted point is:	
Between 2nd & 3rd curve	
Exactly on the 3rd curve	Child is moderately underweight
Plotted point is below the 3rd curve	Child is severely underweight

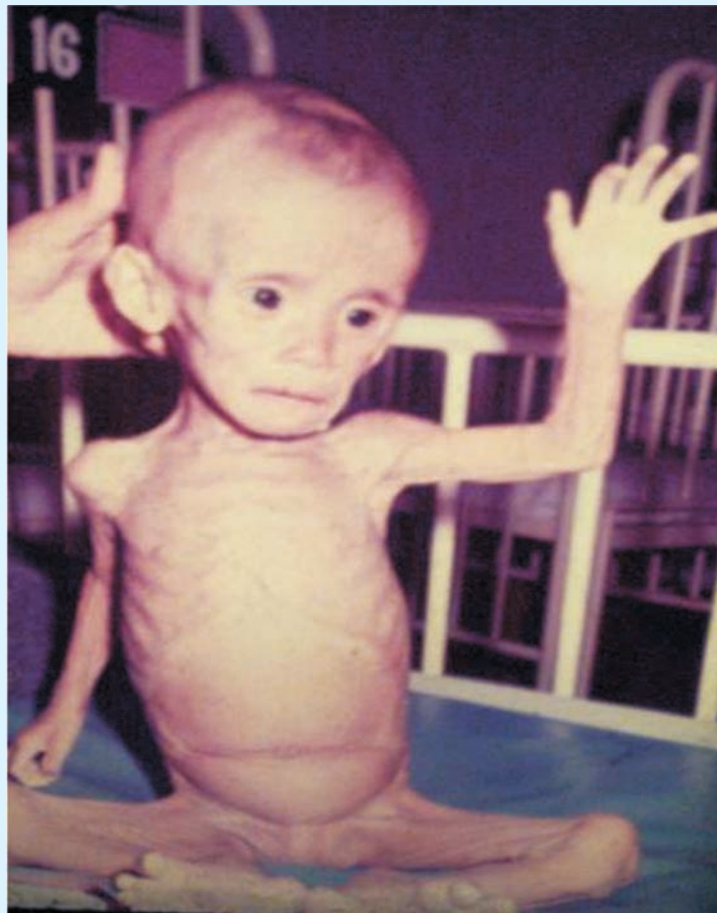
5.2 INTERPRETING GROWTH CURVE OF CHILDREN WITH CLINICAL SIGNS

Observe the child and note clinical signs. It may be mentioned that weight of children with clinical signs would be plotted and indicated clearly on the growth chart (close to the plotted point) about child's clinical sign.

5.2.1 If a child is severely underweight, clinical signs of marasmus or kwashiorkor may be observed. It is important to recognise signs of marasmus and kwashiorkor since they require urgent specialized care that may include special feeding, careful monitoring, medicines, etc. Regardless of their weight, children with these syndromes should be referred for urgent medical care.

5.2.2 Marasmus (non-oedematous malnutrition): In this form of severe underweight, the child is extremely wasted and has the appearance of skinny and bony structure due to loss of muscle and fatty tissue. The child's face looks like an old man's following loss of facial subcutaneous fat, but the eyes may be alert. The rib markings can be easily seen. There will be folds of skin on the buttocks and thighs that make it look as if the child is wearing baggy pants (Picture 5.1). Weight-for-age is likely to be very low.

PICTURE 5.1: A MARASMIC CHILD



5.2.3 Kwashiorkor (oedematous malnutrition): In this form of severe underweight, the child's muscles are wasted, but the wasting may not be apparent due to generalised oedema (swelling from excess fluid in the tissues), a cardinal sign. The child is withdrawn, irritable, sick and will not eat. The face is round (because of oedema) and the hair is thin, sparse and sometimes discoloured. The skin has symmetrical discoloured patches where the skin later cracks and peels off. A child with kwashiorkor will usually be underweight, but the oedema may mask the true weight (Picture 5.2).

PICTURE 5.2: A CHILD WITH KWASHIORKOR

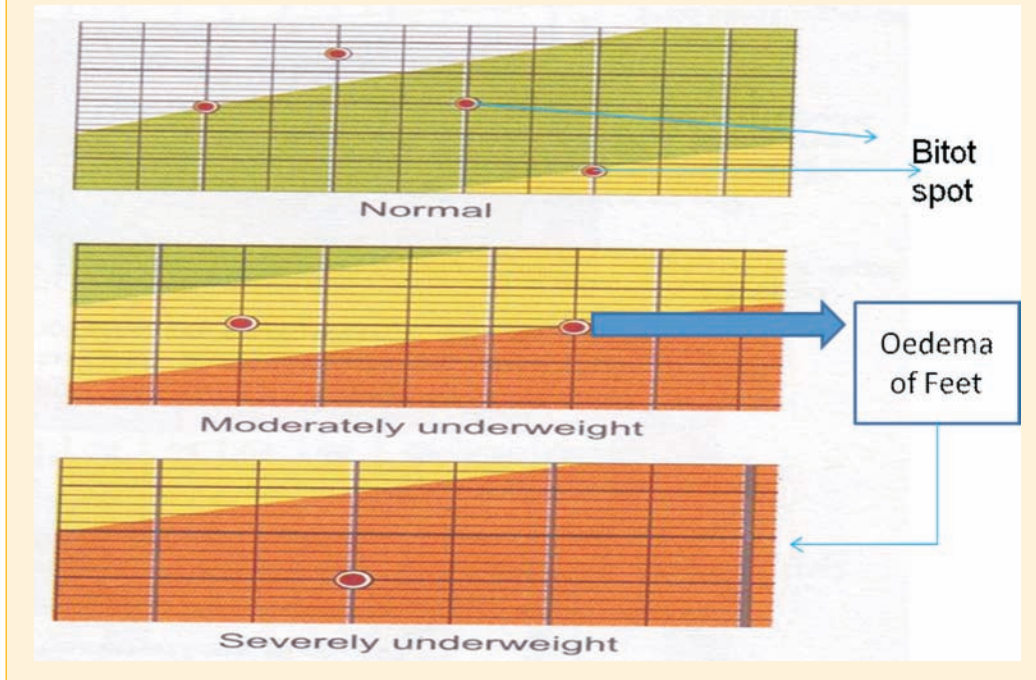


5.2.4 Marasmic Kwashiorkor: A condition where a marasmic child is having oedema is called as marasmic kwashiorkor. The child's upper body is wasted, but the lower limbs are swollen with oedema. If an undernourished child has oedema, he must be a kwashiorkor (or) marasmic kwashiorkor child. Oedema of both feet is a sign that a child needs referral. If the swelling is in only one foot, it may just be a sore or infected foot. To check for oedema, grasp the foot so that it rests in your hand with your thumb on top of the foot. Press your thumb gently for a few seconds. The child has oedema if a pit (dent) remains in the foot when you lift your thumb. Picture 5.3 shows oedema of both feet. A child with oedema of both feet is automatically considered severely underweight, regardless of what the scale shows. The weight will be more due to fluid retention. Plot this child's weight-for-age, but mark clearly on the growth chart (close to the plotted point) that the child has oedema (Picture 5.4). This child is automatically considered severely underweight and should be referred to health centre.

PICTURE 5.3: A CHILD WITH OEDEMA OF BOTH FEET

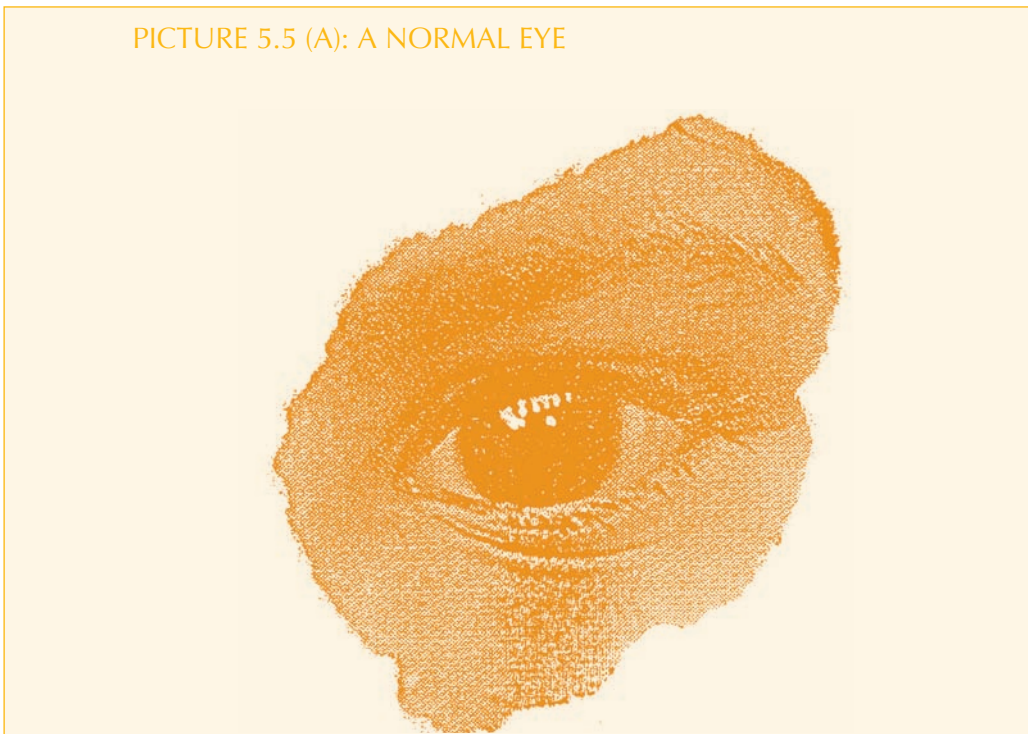


PICTURE 5.4: GROWTH CHART OF CHILDREN WITH CLINICAL SIGNS



5.2.5 Other Clinical Signs

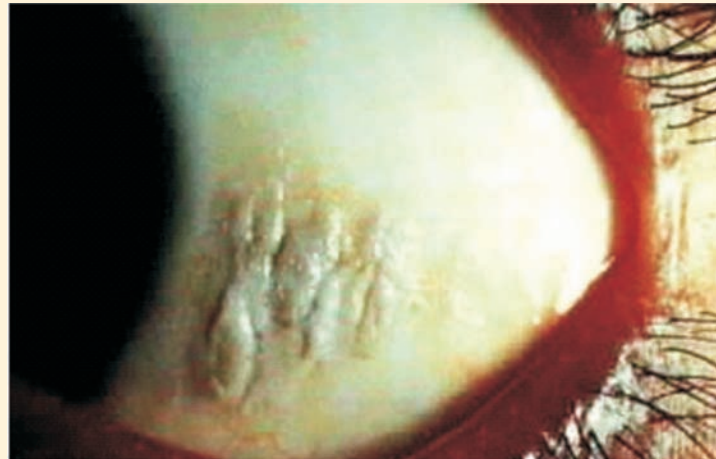
PICTURE 5.5 (A): A NORMAL EYE



PICTURE 5.5 (B): BITOT SPOT IN EYES (VITAMIN-A DEFICIENCY)



PICTURE 5.5 (C): HEALED BITOT SPOT IN EYE



PICTURE 5.6(A): SPOON-SHAPED NAILS WITH IRON DEFICIENCY ANAEMIA



PICTURE 5.6 (B): NAILS WITH IRON DEFICIENCY



PICTURE 5.6(C): PALE TONGUE (ANAEMIA)



PICTURE 5.7(A): PERSONS WITH IODINE DEFICIENCY DISORDERS (GOITRE)



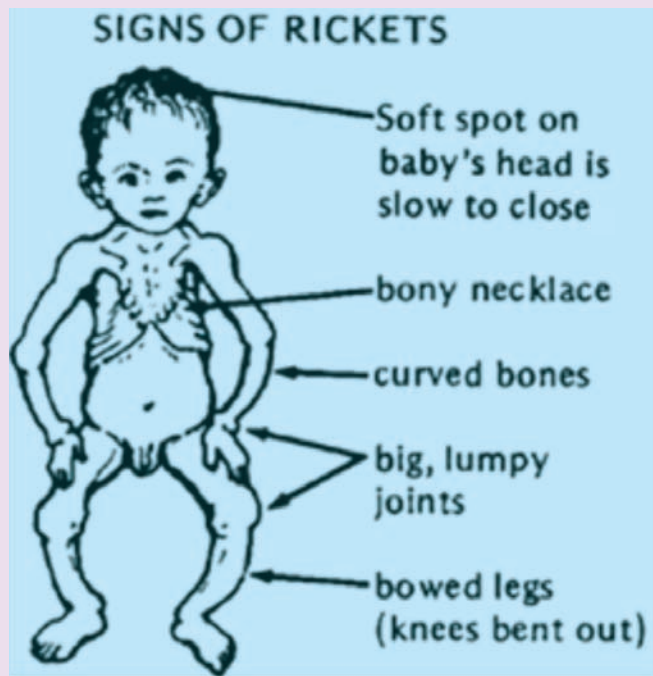
PICTURE 5.7(B): PERSONS WITH IODINE DEFICIENCY (CRETINISM)



PICTURE 5.8 (A): A CHILD WITH VITAMIN-D DEFICIENCY (RICKETS)



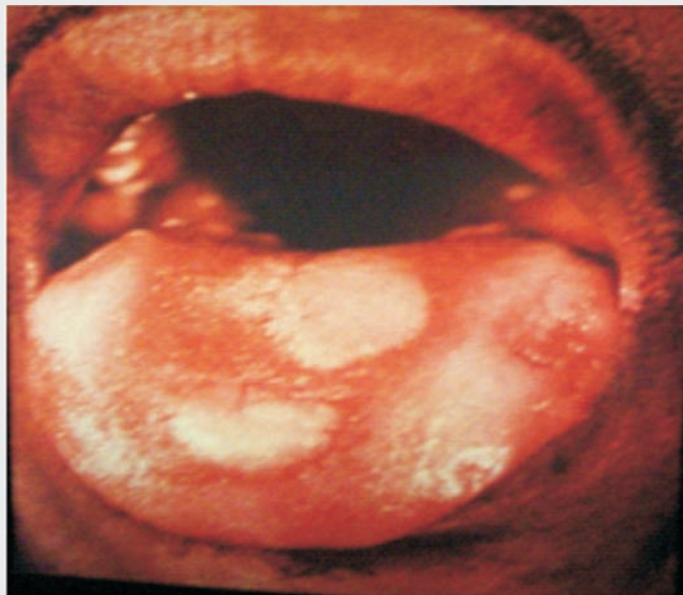
PICTURE 5.8 (B): SIGNS OF RICKETS



PICTURE 5.9 (A): ANGULAR STOMATITIS (RIBOFLAVIN DEFICIENCY)



PICTURE 5.9 (B): GLOSSITIS (RIBOFLAVIN DEFICIENCY)
GEOGRAPHIC TONGUE



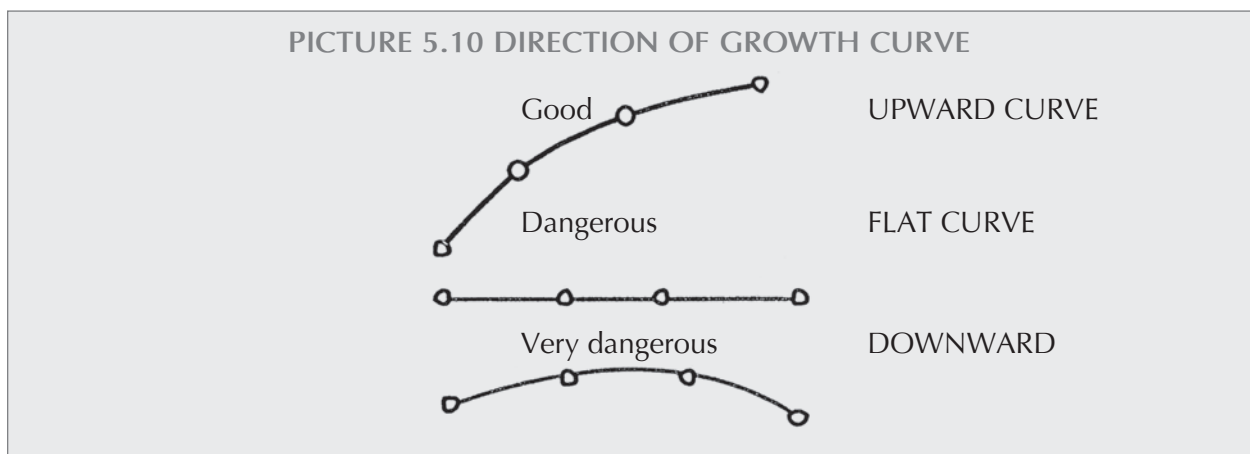
REMEMBER:

IF A CHILD HAS MARASMUS, KWASHIORKOR, OEDEMA FEET OR ANY OTHER CLINICAL SIGNS, NOTE THESE OBSERVATIONS IN THE GROWTH CHART AND REFER THE CHILD FOR MEDICAL CARE.

5.3 DIRECTION OF CHILD'S GROWTH CURVE

- Direction of the growth curve helps in determining the growth pattern of a child.
- It is very important to consider the child's whole situation while assessing the growth pattern.
- Interpreting trends on the growth chart or the growth pattern will indicate whether a child is growing normally, has a growth problem, or is at risk of a growth problem.
- The growth curve of a normally growing child usually follows a track that is roughly parallel to the 1ST or 2nd printed curve lines. The track may be below the 1st curve line or above the 2nd curve line.
- Note the direction of the growth curve of the child, which can be upward, flat or downward (Picture 5.10).
 - If the growth curve of a child is moving upward, it is considered good.
 - If the growth curve of a child is flat, it is considered dangerous.
 - If the growth curve of a child is moving downward, it is considered very dangerous.

Interpret growth pattern of the child as per the direction of the growth curve which can be good, dangerous or very dangerous as given in Picture 5.10.



Direction of Growth Curves	Growth Pattern
Upward Growth Curve	Good Indicates adequate weight gain for the age of the child. The child is growing well and is healthy.
Flat Growth Curve	Dangerous Indicates that the child has not gained weight and is not growing adequately. This is called stagnation. The child needs attention by the mother and the AWW. This needs to be investigated.
Downward Growth Curve	Very dangerous Indicates loss of weight. The child requires immediate referral and health care.

5.4 GROWTH PROBLEMS

Growth problems or risk can be interpreted from the child's growth curve for the following situations:

i) Child's growth curve is far above the first curve line

Child may have a growth problem. This is better assessed from other nutrition indicators at the health centre. However, it may be mentioned that a tentative principle has been followed to understand the growth curve above the green band that is a hypothetical line dividing green band into two equal parts may be drawn and one of the two equal parts may be pasted above the green band and the children whose plotting falls between this hypothetical line and the real green zone need not to be referred to health centre. However, children whose plotting falls above the hypothetical line actually have growth problem and need to be referred to health centre.

ii) Child's growth curve is far below the third curve line

Child may be severely underweight and she/he needs urgent specialised medical care.

iii) Any quick change or sharp incline or decline in the child's growth curve

When child's growth curve goes upward or downward from its normal track, this needs to be investigated to determine the cause and remedy of the problem.

iv) Child's growth curve crosses a printed curve line

If a child's growth curve crosses a printed curve – either from above or below, it means there has been a significant change in the child's growth. This may indicate a good change or risk. An AWW can interpret it based on from where (relative to the 1st curve line) the change in the curve began and the rate of change as given below:

- If the shift is towards the 1st curve (green), this is probably a good change.
- If the child's growth curve line stays close to the 1st curve, occasionally crossing above and below it, this is fine.
- If the shift is towards 2nd curve (yellow) or 3rd curve (orange) this indicates a problem or risk of a problem. If it is noticed on time, it may be possible to intervene early and prevent a problem.

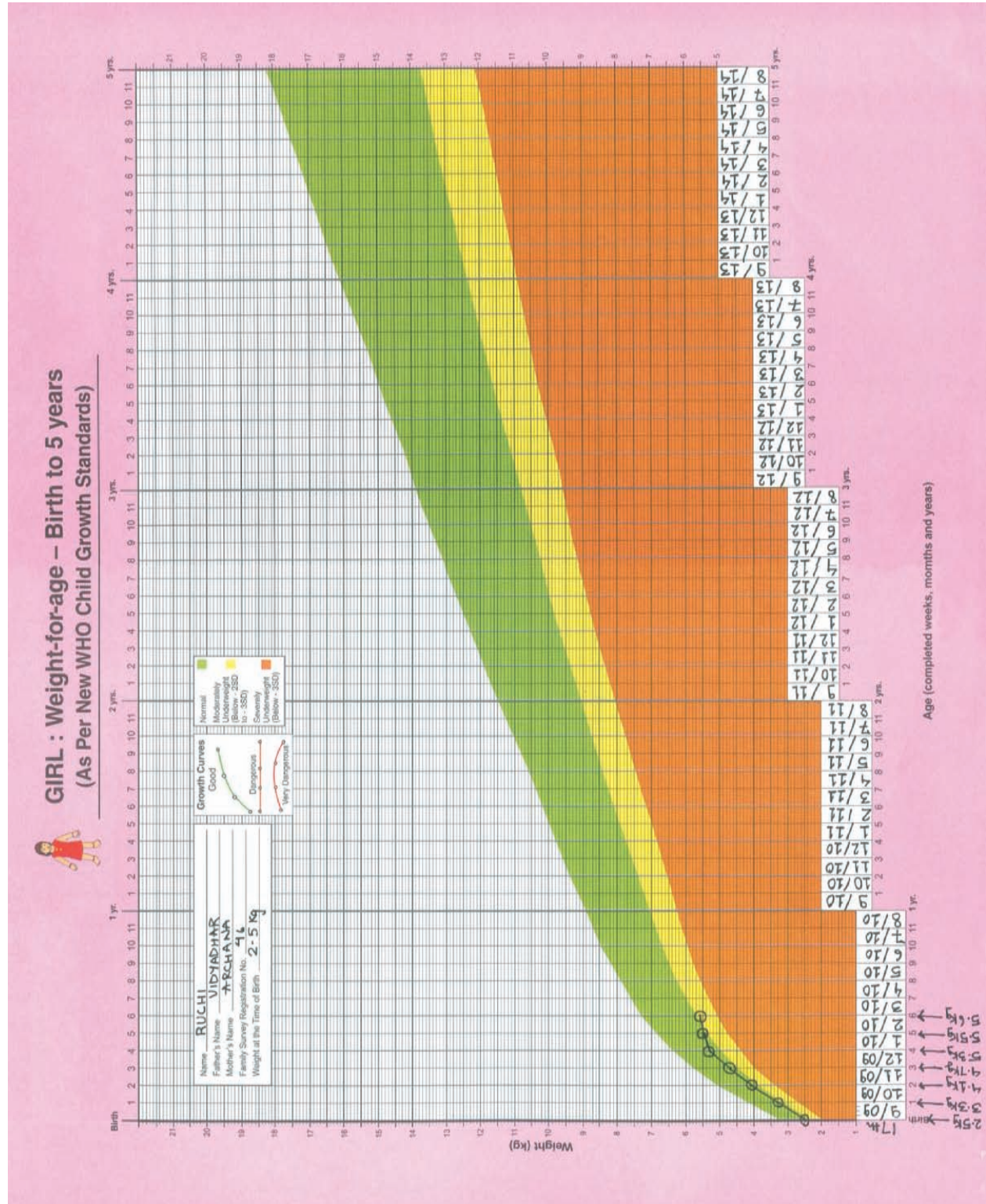
v) Child's growth curve remains flat

Child may have a growth problem if there is no gain in weight as the age increases. This is called stagnation. This needs to be investigated if the condition remains so consecutively for 2-3 months.

5.5 SOME EXAMPLES OF INTERPRETATION

A closer look at the growth curve of Ruchi (Picture 5.11) will show that she had a steady weight gain, 800-400 grams per month from September 2009 to January 2010. This weight gain is adequate for her age (weight gain at different ages was discussed in Chapter I). Between January 2010 and

PICTURE 5.11: GROWTH CHART OF RUCHI



March 2010, the weight gain was about 200-100 grams per month. Since there was some weight gain during this period, the direction of the growth curve is upward. However, the weight gain is not sufficient for her age. The AWW should find out reasons for slow growth during this period. The growth curve between January and March is not a healthy upward curve. Therefore, it is not only an upward curve which is important, but also a healthy upward curve, as a result of adequate weight gain each month.

REMEMBER:

DIRECTION OF THE GROWTH CURVE TELLS YOU WHETHER THE CHILD IS GROWING OR NOT. AN UPWARD GROWTH CURVE, SHOWING ADEQUATE WEIGHT GAIN FOR THE AGE OF THE CHILD, INDICATES THAT THE CHILD IS GROWING AND IS HEALTHY.

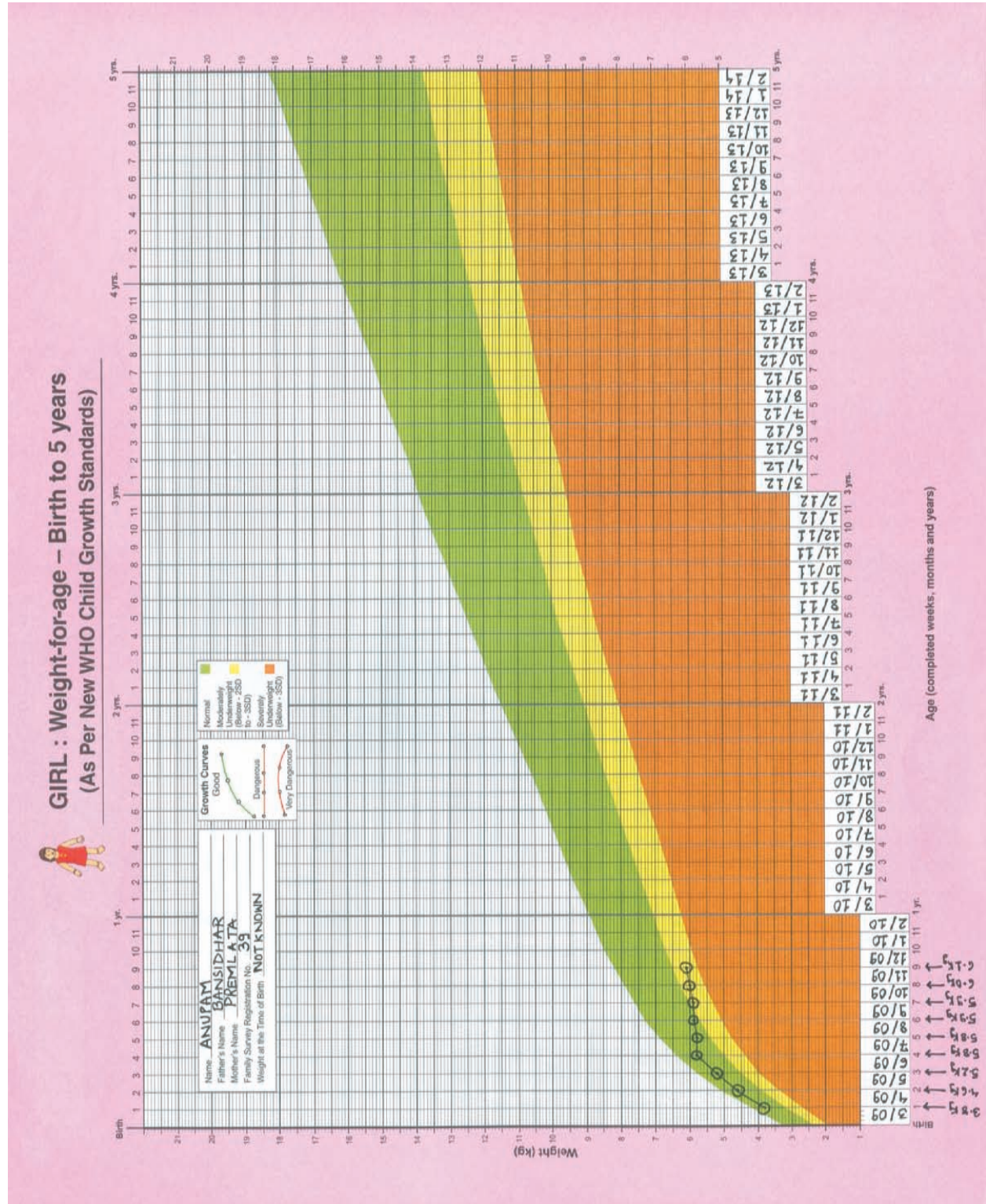
5.5.1 Picture 5.12 shows the growth chart of Anupam. From the growth curve of Anupam, it can be seen that from March to July 2009 there was a steady weight gain and the direction of the curve is upward. However, after July 2009, the direction of the growth curve is flat. A flat growth curve indicates that the child has not gained weight in that period, which indicates no growth or growth faltering. If a child does not gain weight for one or two months, she may not show any signs of ill health and may look the same. However, a faltering growth curve is an indication that there is something wrong with the child. Prompt action by the AWW and the mother is required to ensure healthy growth in the child.

5.5.2 Picture 5.13 shows the growth chart of Shalu. The growth chart shows that Shalu has been growing very well from March to June 2009. The direction of the growth curve is upward. After June 2009 and up to October 2009, the direction of the growth curve is upward but the rate of growth has slowed down. After October 2009 till January 2010, the direction of the growth curve is downwards. A downward growth curve indicates that the child has lost weight which is a matter of great concern. It usually represents sick child or one who has had some recent illness. It is important that the Anganwadi Worker finds out why the child is losing weight and takes appropriate action. Often, the child is sick and will require medical care as well as more food and improved overall care at home. A child with a downward growth curve is particularly in need of attention and close follow-up through home visits during the months ahead.

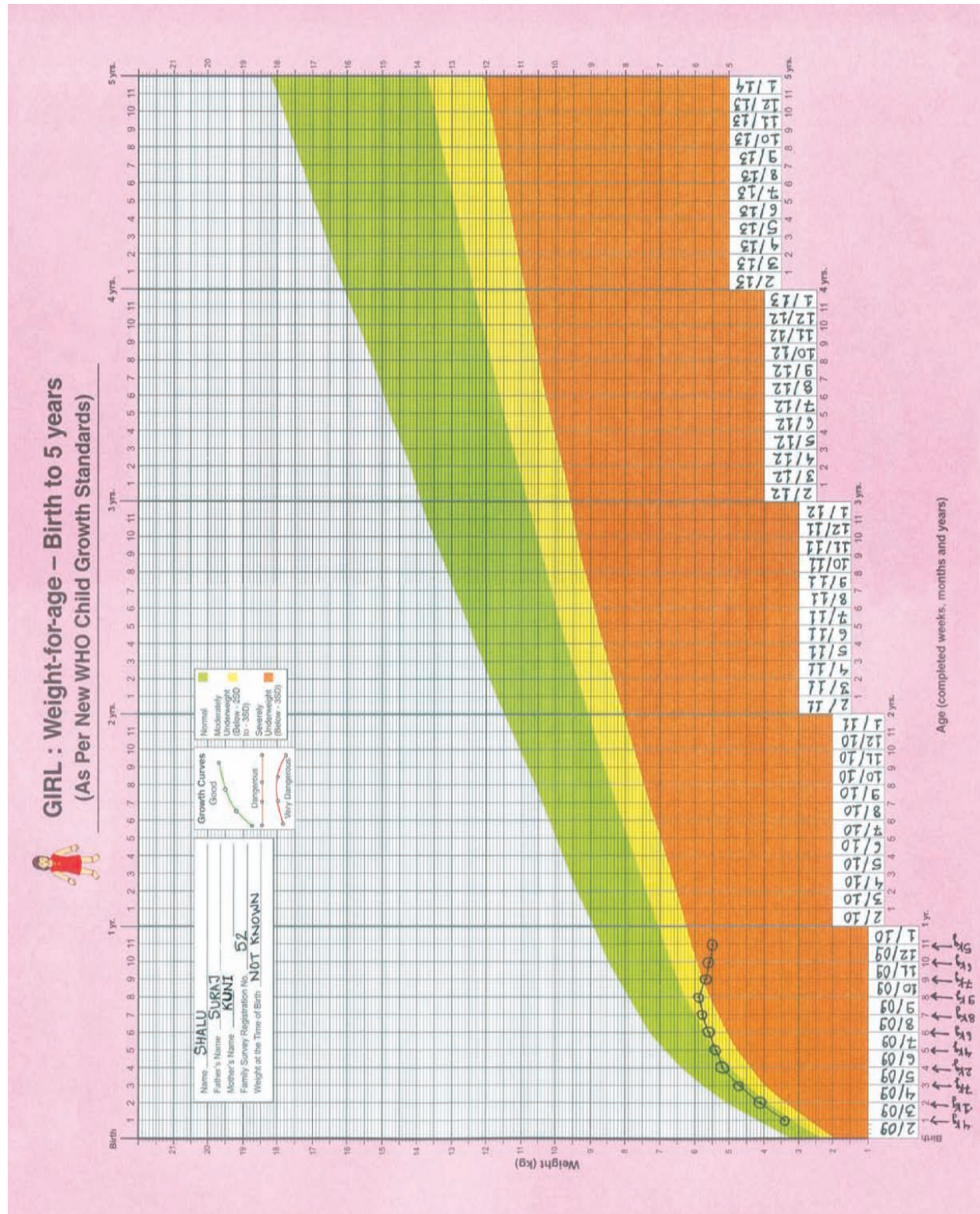
REMEMBER :

A FLAT GROWTH CURVE INDICATES NO WEIGHT GAIN, WHICH IS NOT GOOD AND REQUIRES ATTENTION BY THE AWW AND MOTHER. A DOWNWARD GROWTH CURVE INDICATES LOSS OF WEIGHT WHICH IS VERY DANGEROUS. THIS REQUIRES PROMPT ATTENTION BY AWW AND MOTHER.

PICTURE 5.12: GROWTH CHART OF ANUPAM



PICTURE 5.13: GROWTH CHART OF SHALU



If a child is in yellow or orange band, this means that she is lighter than other healthy children of her age. This may be due to a number of reasons that may have occurred during her early years of life time, such as being born with a low birth weight, having a period of illness, introducing solid foods too late, or simply not eating enough food. But, if this child, who is in any band below normal, is gaining adequate weight each month as shown by her growth curve going in an upward direction, then, we know this child is growing well. Picture 5.11 shows the growth chart of Ruchi, who is moderately underweight, but she is growing normally from September 2009 to December 2009. Even though smaller than other children of her age, her weight shows a healthy upward curve. She is growing and is likely to become healthy. All efforts are needed so that she is in green zone. The weight gain is also important like the grade of weight.

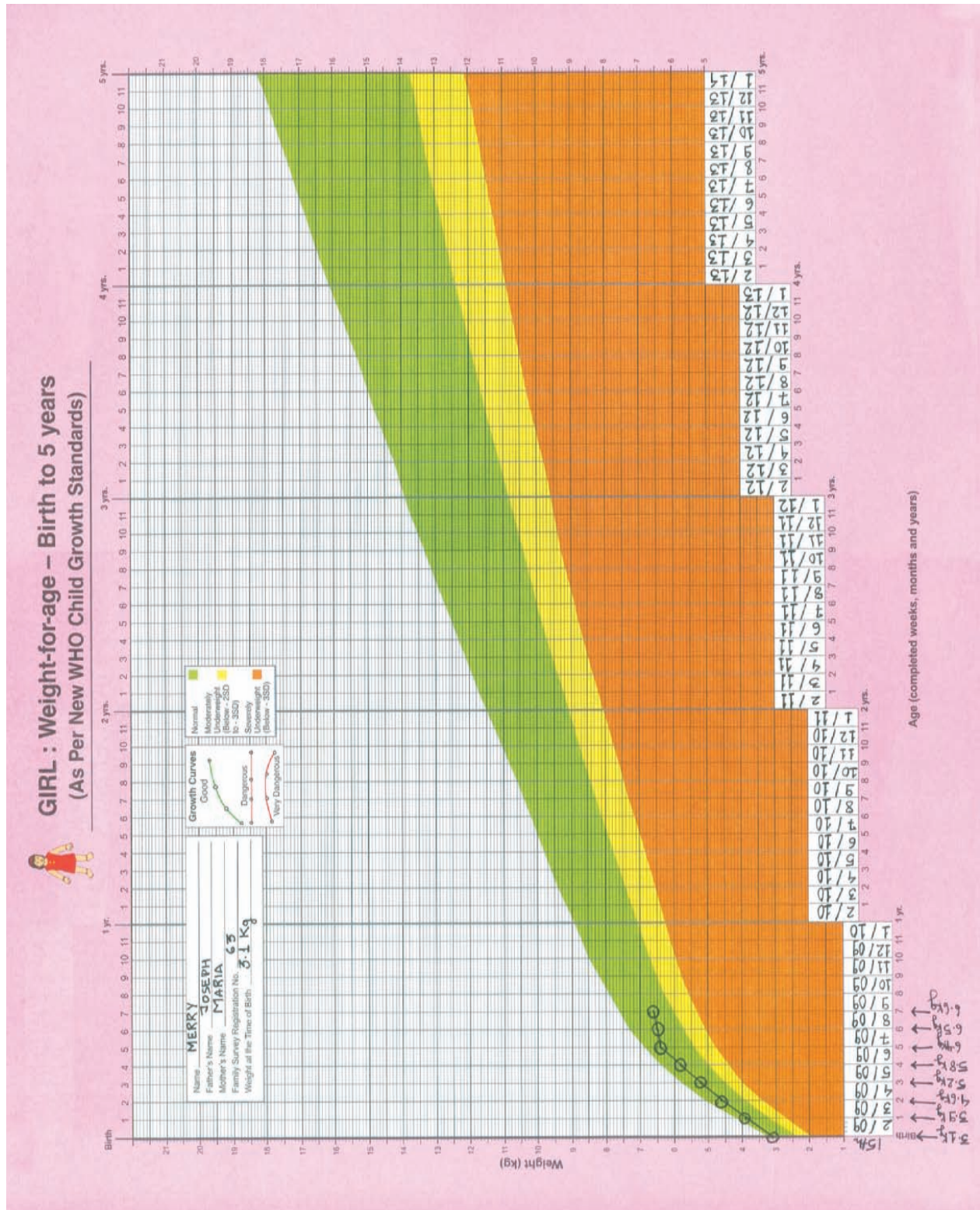
5.6.1 If a child is in the “normal” weight band, but not gaining adequate weight each month, it means that she is not growing. Picture 5.14 shows the growth chart of Merry. Although Merry is in normal grade, she is not growing well after July 2009. The Anganwadi Worker should have taken prompt action in August 2009 to promote normal growth and to prevent the child from becoming underweight. A child, who is not gaining weight every month, no matter what weight grade, needs attention. If the mother takes immediate action whenever her child has faltering or declining growth, the child will not become underweight. On the other hand, if the child is in a low weight grade but, under the guidance and encouragement of the AWW, continues to have a rising growth curve, the child is doing well. Even though smaller than other children of her age, she is growing and is healthy.

5.6.2 Whether the child has gained weight or has not gained weight, what mothers can do to promote growth should be the major focus while discussing the growth of children with their mothers each month. This point is discussed in detail in the next chapter.

REMEMBER:

THOUGH THE GRADE OF CHILD IS IMPORTANT BUT IT IS THE WEIGHT GAIN EACH MONTH WHICH IS MORE IMPORTANT.

PICTURE 5.14: GROWTH CHART OF MERRY



EXERCISE-8

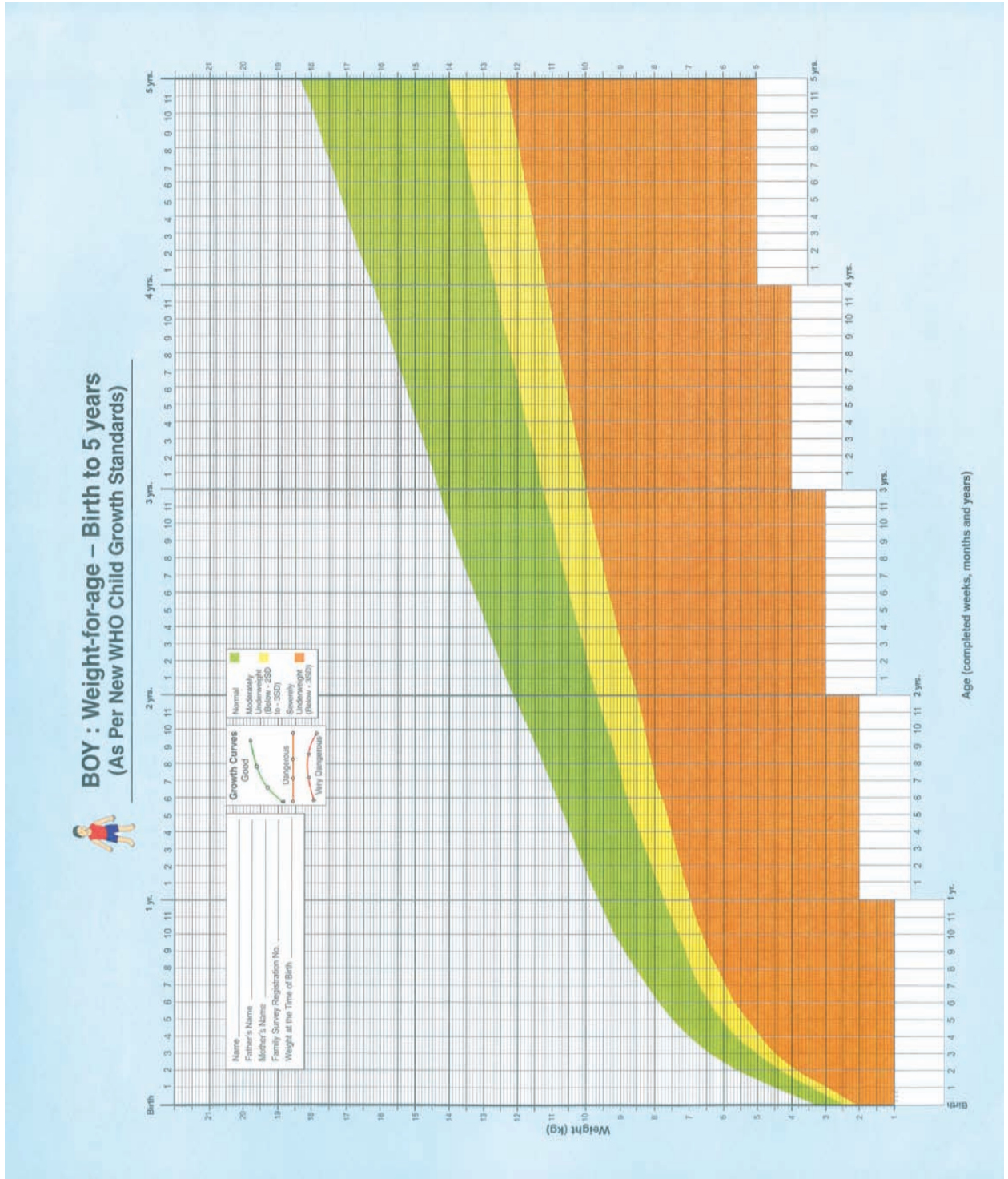
Complete exercises 8 and 9. These exercises will give you practice in filling up a growth chart, plotting weight and in identifying an upward healthy curve, a flat curve and a downward curve.

- (A) Lakshmi has given birth to a baby-boy. You visited Lakshmi in the second week of August 2007 about 4-5 days after the baby was born on 7 August 2007. Lakshmi and Daya Singh have named their son Ram. The family registration number is 44.
- 1) Fill in the information box of Ram's growth chart.
 - 2) What month and year was Ram born in ?
 - 3) Record date of Birth also
 - 4) Fill in the monthly boxes of the growth chart for five years.
 - 5) You explained to Lakshmi the importance of weighing her baby and asked her permission to do so. The baby weighed 3.2 kg. Plot this weight on the growth chart.
- (B) During your next home visit in mid September 2007, you weighed Ram. He weighed 3.9 kgs.
- 1) Plot this weight on his growth chart.
 - 2) Draw a line to connect the two weight points.
- (C) In the following month, October, 2007, Lakshmi came to the Anganwadi on 10th day to weigh Ram. He weighed 4.5 kgs.
- 1) Plot this weight on his growth chart.
 - 2) Draw a line to connect the weight plotted in August and the weights plotted in September and October. The line is Ram's growth curve.
 - 3) What is the direction of the growth curve ?
 - 4) How much weight has Ram gained between September – October'2007. Is this sufficient ?
- (D) On 7th November, 2007 Ram weighed 4.8 kg and on 11th December 2007 Ram weighed 5.3 kg.
- 1) Plot this weight on the growth chart.
 - 2) What is the grade of Ram's growth curve ?
 - 3) What is the direction of the growth curve ?
 - 4) Is this good ?

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

BLANK GROWTH CHART FOR RAM (EXERCISE 8)



EXERCISE-9

(A) Jeevan Lal was born at his grandmothers village. His mother, Sarita, came back to her village with Jeevan Lal in early September 2007. You went to her house immediately. After congratulating Sarita and her husband Pratap Chand, you asked them when Jeevan Lal was born. They said he was born 32 days back on 2nd August 2007. They also showed you the papers from the PHC. From these, you confirmed the date of birth. His family registration no. is 48.

1) Fill in Jeevan Lal's growth chart

(B) During this visit, you weighed Jeevan Lal. He weighed 4.3 kg.

1) Plot this weight on his growth chart.

(C) Sarita did not bring Jeevan Lal to the Anganwadi during September for the weighing session. So, you made a home visit on 5 October and weighed him. Jeevan Lal again weighed 4.3 kg.

1) Plot this weight on his growth chart.

2) Draw a line to connect the two points.

3) What do we call the line formed by connecting the two points ?

4) What is the direction of the growth curve ?

5) Is this good, not good or dangerous ? Why ?

6) What grade is Jeevan Lal in ?

7) Jeevan Lal is in the normal grade. What does the growth curve indicate ?

(D) On 2nd November, Sarita brought Jeevan Lal to be weighed. He weighed 4.2 kg.

1) Plot this weight on the growth chart.

2) Connect this point with the others ?

3) What is the direction of the growth curve since September ?

4) Is this good ? Not good or dangerous ?

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

CHAPTER - VI

DISCUSSING THE CHILD'S GROWTH AND FOLLOW - UP ACTION WITH THE MOTHER

After reading this chapter and completing the exercises suggested at the end of the chapter, the reader will be able to:

1. explain the growth curve to the mother;
2. describe how listening to the mother is beneficial in determining what has caused normal growth or lack of growth in the child during the past month(s);
3. explain some of the problems which may cause faltering or declining growth in a child;
4. demonstrate what and how to advise a mother on appropriate action depending on the age of the child, the duration of no weight gain or weight loss and the various possible causes of growth faltering in the child;
5. describe when to refer the child for further assistance to the health worker;
6. explain which child should receive food supplements in the ICDS programme and why; and
7. describe which child should receive a home visit during the month and what will be discussed with the mother about the child during that month.

DISCUSSING THE CHILD'S GROWTH WITH THE MOTHER

Now, we are ready to discuss the most important step in growth monitoring: using the growth curve information of each child to give specific advice to mothers to make sure their children keep growing normally. The growth trend of the child should be discussed with the mother every month immediately after weighing.

- 6.1** The **FIRST STEP** in giving specific advice to mothers is to observe the growth curve of the child and determine the growth trend. See if the child has gained adequate weight, not gained weight or lost weight, as compared to the previous month's weight. The growth chart should be shown to the mother and growth trend discussed with her: whether the child is growing normally or not.
- 6.2** The **SECOND STEP** is to ask the mother what has been happening to the child during the last month to make her child's growth pattern happen that way. Too often, we start telling the mother what to do without listening to her and finding out the reasons why the child is not growing. We must remember that the mother knows the most about her child, and she is the person who can make the changes to improve the child's growth. **LISTEN** carefully to what the mother has to tell you about what the child has been eating and how much, if the child has been sick, if there has been any other problem.
- 6.3** The **THIRD STEP** is to discuss with the mother specific action(s) she can take to promote her child's growth. This will depend on what the mother tells you, the trend of the growth curve and the age of the child.

6.4 DISCUSSING SPECIFIC ACTION WITH MOTHERS

The specific action each mother should take to promote her child's growth will differ, depending on the age of the child, and his/her growth trend if the child has been growing normally or not. AWW must learn how to give advice that is appropriate and that the mother can understand easily and implement.

- 6.4.1** If the child's growth curve has been rising, show the growth curve to the mother and appreciate the mother that this is good and **ASK** her what has happened during the past months which has made the child's growth so good. **LISTEN** carefully to the mother. She may give you many practical ideas and suggestions which have made her child grow normally. **These** ideas can then be used to advise other mothers in the AWC in the same village who may benefit from the advice of their successful friends. Tell the mother, whose child is growing well, that she should be proud of herself, that her actions have been successful and she should continue them. Learn from these mothers and encourage them to share their child-rearing practices with others.
- 6.4.2** If the child's growth curve is flat or downwards, explain the growth curve to the mother and point out to mother that the child's **GROWTH** is a source of concern and ask her what has happened to the child in the last month. **LISTEN** carefully. Many different reasons can cause

poor growth. You must find the reason(s), which caused poor growth in this child at this very time. The mother may give the following reasons:

- i) Episodes of illness, such as fever, cough, cold, measles, malaria, diarrhoea etc;
- ii) Child's unwillingness to eat anything;
- iii) Inability to introduce complementary food due to lack of understanding of the child's nutritional requirements, customs and, beliefs or refusal of food by the child; and
- iv) Abrupt discontinuation of breast milk without introduction of complementary food due to second pregnancy.

6.4.3 While discussing these issues with the mother, the AWW may realise that the mother has a busy work schedule due to which she is not able to pay adequate attention to the child's feeding and health. If the mother describes an illness, ask what she did for the child. Ask if she continued feeding during illness and if she gave the child extra food to eat when the illness was over. See if she took action to get proper treatment for the child's illness. For example, if the child had diarrhoea, ask if she gave the child adequate fluids to drink to treat the child's fluid losses. Make sure that she understands how to make and use oral rehydration solution and recognise the importance of continued breast/colostrum feeding even while the child is sick. If she has withheld food during illness, explain to her, by showing the line on the growth chart, how this has caused the child's growth to falter or go downward. Encourage her to feed the child extra food everyday over the next month to recover this lost growth.

6.4.4 If the child has not been sick, you have to ask the mother how often she feeds the child and what food she gives the child. The kind and the amount of food vary, depending on the age of the child.

6.4.5 The step wise basic principle to be followed in discussing child's growth with mother are as stated below.

- **Asking** the mother important questions and **listening** to her responses.
- **Praising** her when appropriate.
- **Advising** the mother, using simple language, and giving only relevant advice.
- **Checking understanding** to ensure that mother has understood the advice.
- **Follow-up** with mother to ensure and strengthen implementation of advice.

REMEMBER :

TO DISCUSS THE GROWTH OF THE CHILD WITH THE MOTHER

- DETERMINE THE TREND OF THE GROWTH CURVE.
- SHOW THE GROWTH CHART TO THE MOTHER.
- ASK WHAT SHE DOES.
- LISTEN TO THE MOTHER TO FIND OUT WHAT HAS HAPPENED TO THE CHILD.
- DISCUSS WITH HER SPECIFIC ACTION(S) WHICH SHE CAN TAKE TO PROMOTE GROWTH.

6.5 GIVING AGE SPECIFIC ADVICE TO THE MOTHER

The advice to the mothers of children of different ages differs. For a three months old child, the focus should be on exclusive breastfeeding, mother's diet and frequency of breast feeding and immunisation. For a child of more than 6 months old, the focus shifts to introducing mashed, semi-solid foods, continued breastfeeding, gradually increasing the quantity of food etc. For a 9-11 months child, the emphasis is on gradually increasing the quantity, and introducing variety of foods, which need not be mashed.

6.5.1 A one or two year old child has to eat half as much as an adult in the house eats; instead of feeding the child 2-3 meals, let him eat 5-6 times a day. Make suggestions about different foods the mother can use, that are cheap and locally available. Remember to give only relevant advice to the mother for her child.

6.5.2 Given below are points you should discuss with the mothers of children at different age periods.

POINTS TO DISCUSS WITH THE MOTHER OF A NEW BORN BABY – 2 MONTHS OLD CHILD

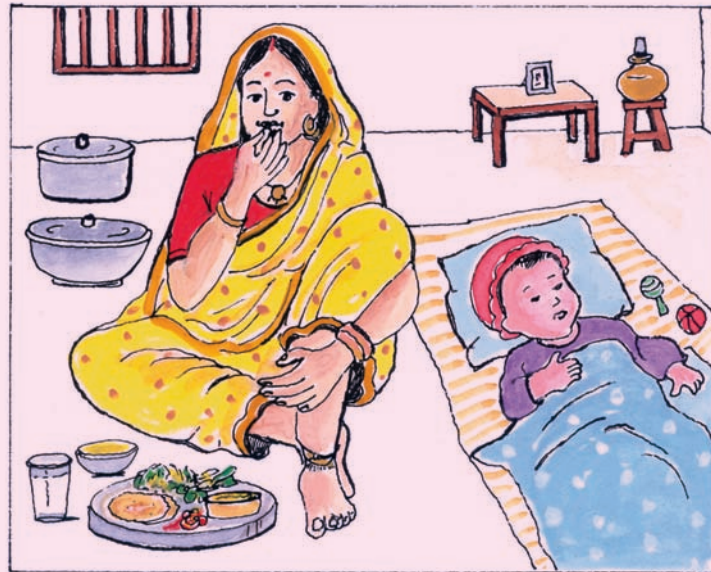
- PUT THE CHILD TO BREAST AS SOON AS POSSIBLE, PREFERABLY WITHIN ONE HOUR OF BIRTH
- FEED THE YELLOWISH FIRST MILK (COLOSTRUM) TO GIVE PROTECTION TO THE BABY FROM DISEASES
- EXCLUSIVE BREASTFEEDING FOR 6 MONTHS; DO NOT GIVE ANY OTHER FOOD OR DRINKS AND NOT EVEN WATER
- FEED THE BREAST MILK WHENEVER THE CHILD WANTS IT, DURING DAY AND NIGHT
- BREASTFEED TILL THE CHILD IS SATISFIED AND THE CHILD STOPS SUCKING
- CONTINUE BREAST FEEDING EVEN IF THE CHILD IS SICK

PICTURE 6.1: A MOTHER BREASTFEEDING HER CHILD



- LACTATING MOTHER SHOULD DRINK PLENTY OF FLUIDS (WATER, SOUPS, TEA, MILK, LASSI, ETC.)
- LACTATING MOTHER SHOULD EAT EXTRA FOOD – AN EXTRA SNACK / MEAL

PICTURE 6.2: A MOTHER EATING ADEQUATE FOOD



- GET THE CHILD BCG, DPT, POLIO IMMUNISATION

PICTURE 6.3: A BABY BEING GIVEN BCG IMMUNISATION



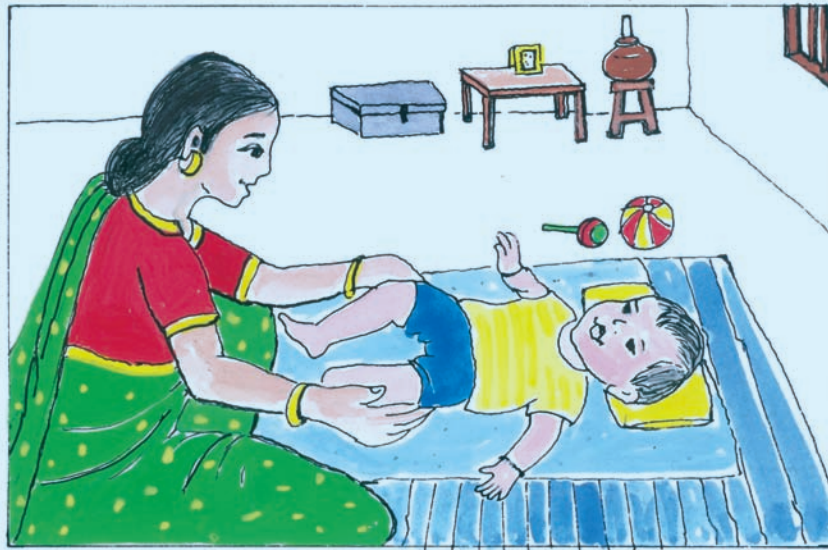
- GET THE CHILD WEIGHED EVERY MONTH

PICTURE 6.4: A MOTHER GETTING HER CHILD WEIGHED



- KEEP THE BABY AND THE SURROUNDINGS CLEAN

PICTURE 6.5: A BABY WITH HIS MOTHER IN A NEAT & CLEAN HOUSE



POINTS TO DISCUSS WITH THE MOTHER OF A 3-6 MONTHS OLD CHILD

- EXCLUSIVELY BREASTFEED THE CHILD, NO OTHER LIQUID TO BE GIVEN TO THE CHILD
- BREAST FEED 8-10 TIMES DURING DAY AND NIGHT

- FEED TILL THE CHILD IS SATISFIED AND THE MOTHER FEELS THE BREASTS EMPTY
- CONTINUE BREASTFEEDING DURING ILLNESS

PICTURE 6.6: A MOTHER BREASTFEEDS HER CHILD



- DRINK PLENTY OF FLUIDS AND EAT MORE FOOD TO PRODUCE ENOUGH MILK
- GIVE THE CHILD REMAINING DOSES OF DPT AND POLIO IMMUNISATION

PICTURE 6.7: A BABY GIVEN DPT IMMUNISATION



- GET THE CHILD WEIGHED EVERY MONTH

POINTS TO DISCUSS WITH THE MOTHER OF A 7-11 MONTHS OLD CHILD

- GIVE COMPLEMENTARY FOODS FOLLOWED BY BREAST FEEDING OR IN BETWEEN BREAST FEEDS

- MODIFY THE FOOD COOKED AT HOME BY: COOKING IT A LITTLE MORE, MASHING IT, TAKING OUT A PORTION FOR THE BABY, BEFORE ADDING MASALA/ CHILLIES
- START WITH A SMALL QUANTITY OF FOOD, INCREASE THE QUANTITY SO THAT CHILD TAKES HALF KATORI/CUP OF FOOD AT ONE TIME (SIZE OF KATORI/CUP ABOUT 150 ML)

PICTURE 6.8: A MOTHER PREPARING COMPLEMENTARY FOOD FOR HER CHILD



- START SEMI-SOLID FOODS SINCE BREAST MILK ALONE CANNOT SUPPORT ADEQUATE GROWTH AFTER SIX MONTHS

PICTURE 6.9: A MOTHER GIVING SEMI-SOLID FOOD TO HER CHILD



- INTRODUCE ONE NEW FOOD IN A DAY ESPECIALLY WHEN CHILD IS HUNGRY SO CHANCES OF ACCEPTANCE ARE MORE

- GIVE WELL COOKED MASHED FOODS LIKE POTATO, BANANA, PORRIDGE MADE OF ANY CEREAL, MILK/WATER, SUGAR/JAGGERY, BREAD/CHAPATI/BHAKARY SOAKED IN MILK OR CURRY OR VEGETABLES, DAL; THE FOOD SHOULD BE SOFT BUT NOT WATERY

PICTURE 6.10: MASHED FOODS (POTATO, BANANA, PORRIDGE ETC.)



- THE CHILD AT THIS AGE PUTS EVERYTHING HE FINDS IN HIS MOUTH. THIS MAY RESULT IN LOOSE STOOLS

PICTURE 6.11: A CHILD PUTTING SOMETHING IN HIS MOUTH WHICH MAY RESULT IN LOOSE STOOLS



- LOOSE STOOLS ARE DUE TO INFECTION AND NOT DUE TO INTRODUCTION OF SEMI-SOLID FOODS
- GIVE PLENTY OF FLUIDS IF CHILD PASSES LOOSE WATERY STOOLS

PICTURE 6.12: A MOTHER GIVING PLENTY OF FLUIDS TO HER CHILD



- CHILD MAY REFUSE TO TAKE A NEW FOOD OR MAKE FUSS IN EATING. BE PATIENT AND PERSISTANT. SOON, THE CHILD WILL GET ACCUSTOMED TO EATING IT
- DELAYED INTRODUCTION OF FOOD WILL AFFECT CHILD'S GROWTH AND MOTHER WILL FIND IT DIFFICULT TO INTRODUCE SEMI-SOLID FOODS IF THE CHILD HAS BEEN ONLY ON MILK FOR TOO LONG
- DO NOT ADD WATER TO COW'S OR BUFFALOE'S MILK
- CONTINUE TO EAT EXTRA FOOD AND DRINK MORE LIQUIDS DURING LACTATION
- GIVE THE CHILD ONE DOSE OF MEASLES IMMUNISATION ALONG WITH VITAMIN A SUPPLEMENTATION
- DO NOT USE BOTTLE TO FEED MILK/WATER. IT IS DIFFICULT TO CLEAN IT AND OFTEN RESULTS IN INFECTION. SO USE A KATORI AND SPOON

PICTURE 6.13: NOT USING BOTTLE TO FEED MILK/WATER TO THE CHILD



POINTS TO DISCUSS WITH THE MOTHER OF 1-2 YEARS OLD CHILD

- CHILD AT ONE YEAR SHOULD START EATING THE FAMILY FOOD
- CONTINUE TO OFFER A WIDE VARIETY OF FOODS INCLUDING FAMILY FOODS SUCH AS RICE, CHAPATTI, DARK GREEN LEAFY VEGETABLES, ORANGE AND YELLOW FRUITS, PULSES AND MILK PRODUCTS
- CHILD SHOULD EAT HALF AS MUCH AS AN ADULT IN THE FAMILY
- FEED THE CHILD ABOUT 5 TIMES A DAY
- FEED FROM SEPARATE BOWL AND MONITOR HOW MUCH THE CHILD EATS
- SIT WITH THE CHILD AND HELP HER FINISH THE SERVING
- CONTINUE BREASTFEEDING UP TO 2 YEARS OR BEYOND
- GIVE VITAMIN 'A' SOLUTION AT SIX MONTHS INTERVAL UP TO THE AGE OF FIVE YEARS

PICTURE 6.14: ONE YEAR OLD CHILD TAKING FOOD WITH FAMILY



POINTS TO DISCUSS WITH THE MOTHER OF 2-3 YEARS OLD CHILD

- CONTINUE TO FEED FAMILY FOODS 5 TIMES A DAY
- HELP THE CHILD FEED HIMSELF/HERSELF
- SUPERVISE FEEDING
- ENSURE HAND WASHING WITH SOAP BEFORE FEEDING

6.6 WHEN TO DISCUSS THE GROWTH CURVE

The growth of a child should be discussed with the mother immediately after weighing. More time will have to be spent with mothers whose children have not gained weight or have lost weight. The growth of the child can be discussed with the mother while she is at the Anganwadi, or during home visits. During home visits, you can spend more time with the mother and also suggest to her more practical solutions which she can immediately start acting on. During home visit, you can also discuss the child's growth with other family members who are the decision makers. Remember that child's growth, especially of children from birth to 3 years, must be discussed with the mother and others concerned every month, within a few days of weighing the child.

6.6.1 Let us now discuss an example of a specific advice to be given to mother.

Salma is a 7 months old baby. She was born at her grandmother's house. Her mother, Asra, got her to this village when she was about a month old. Mamta, the Anganwadi Worker of the village, has been monitoring her growth since that time. Asra, her husband Nusrat (chapdasi in the post office), Salma and Asra's sister-in-law stay together. Picture 6.19 shows the growth chart of Salma. Last month, when Salma came to the Anganwadi, she had completed 6 months. When Mamta weighed her, she told Asra that, although Salma had gained weight that month, it was a little less. She should start some additional foods, besides breast milk, for Salma. Mamta suggested some foods to her. Asra said she would give these foods. Next month, when Salma was weighed, she had gained only 100 gm. After plotting the weight on the growth chart, Mamta decided to pay a home visit at Asra's house. Let us see what the AWW talks to Salma's mother.

Asra greets Mamta. Salma is playing in the varanda. Mamta starts playing with Salma.

Mamta : Where is Farida (her sister-in-law)

Asra : She is grinding wheat at the back.

Mamta : Do you remember we had weighed Salma two days back.

Asra : Yes

Mamta : Look at this chart. Compared to her last month's weight, Salma has not gained weight. Look here at this line. It should have gone up till here (shows the growth chart).

Asra : Is that so? She has been alright !

Mamta : Oh ! Yes, she looks alright. What I am saying is that she has been gaining good weight. But, since last month, it is little less than what she should have gained for her age. I hope that she has not had any illness, fever, cough or loose motions.

- Asra : No, no. She has been alright. Just that she cries a little more than usual. But then, that is due to the heat. It has been very hot. I asked my husband to buy a fan. See, she has prickly heat all over the body.
- Mamta : Yes, it is very hot these days. Give her a bath 2-3 times a day so that the perspiration does not remain on the body and the prickly heat is not formed.
Tell me what all you are giving her to eat ?
- Asra : I give her my milk. Then, little bit to eat.
- Mamta : I had suggested few things to you last time.
- Asra : Yes, I remember
- Memta : Did you start giving her any of the things ?
- Asra : Yes, I gave her. She does not like it. She takes my milk easily. I have no problem.
- Memta : Yes, you are right. She enjoys your milk and that is because she is used to the taste of milk. But, do you feel you are producing enough milk ?
- Asra : Yes, I have got plenty of milk.
- Mamta : But, her weight shows that she is not getting enough. This month, she has gained less weight than last month. What makes a child increase in weight?
- Asra : The food.
- Mamta : So, if Salma has not gained weight this month, it means she has not been getting enough food. You may be producing good amount of milk. But, now that Salma is growing rapidly, your milk is not sufficient for her growth.
- Asra : Yes that is alright. But, she just does not eat.
- Mamta : You will have to work a little for this. She is not used to the taste of any new food you introduce. So, she does not enjoy it and takes long to eat. Give her a little at a time, play with her, talk to her while feeding. Then, try again after some time.
- Asra : Probably she will eat if I stop giving her my milk.
- Mamta : No, don't do that. Your milk is very good for her. At this age, we need to add some more food to your milk. Maybe Salma cries a little more than usual because her stomach is not full.
Tell me what you will give her today ?
- Asra : What should I give, you tell me.

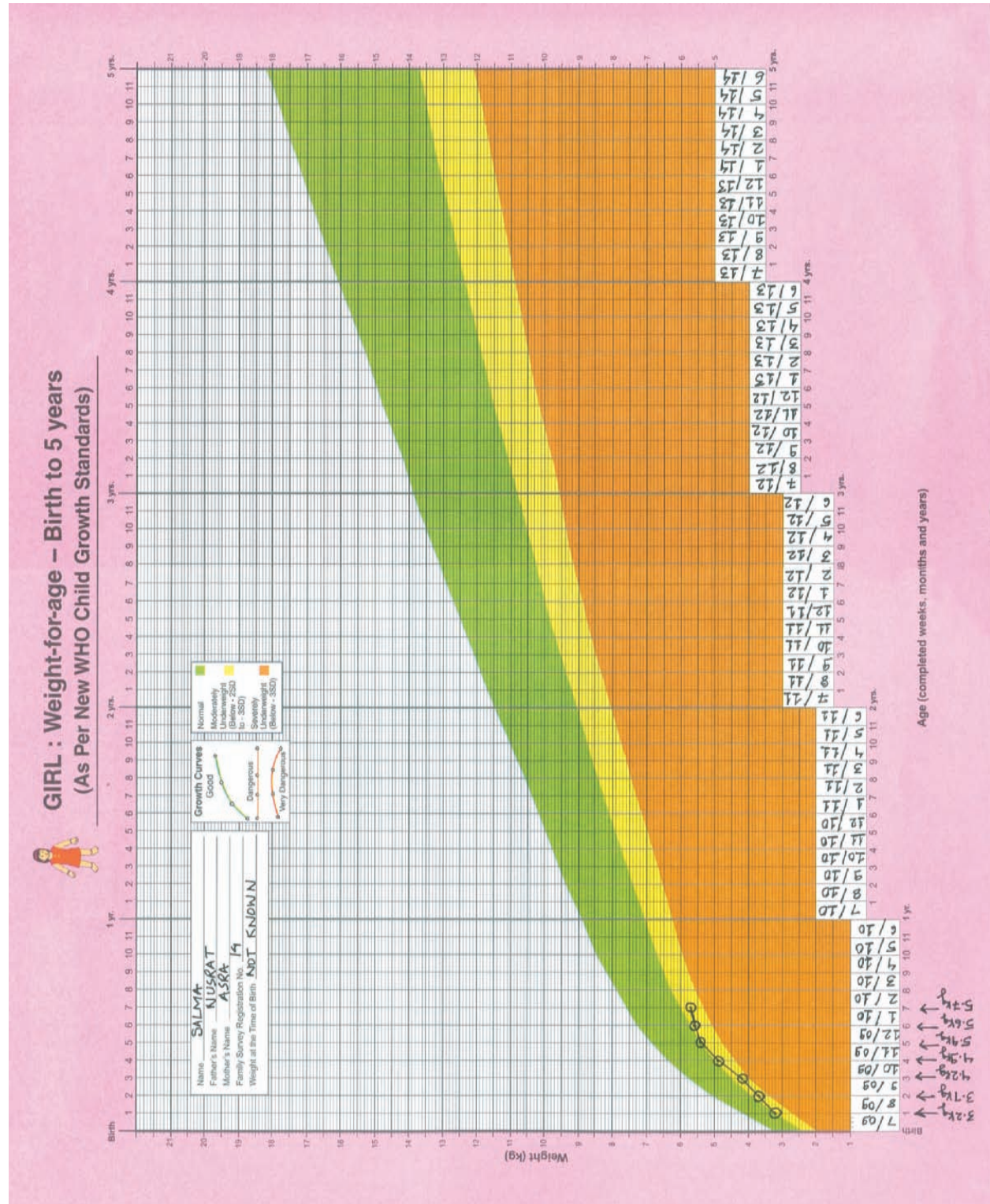
Mamta : Have you finished your lunch ?
Asra : Yes, we just ate.
Mamta : What did you make ?
Asra : Rice, dal and potato vegetable.
Mamta : Is there anything left ?
Asra : A little bit of dal.
Mamta : We can give her some dal. Let us see how well it is cooked.
Asra : Come along, here.
Mamta : Yes, this looks all right. Bring a clean spoon (Asra tries to feed the baby)
Asra : Look, I told you she does not like.
Mamta : Why don't you talk to her, smile at her. Hold her on the legs, so that she is comfortable. (Salma eats 2-3 spoons of dal)
Mamta : That should be enough for today. She has taken about 2 spoons of dal. When did you feed her your milk ?
Asra : A little while ago.
Mamta : In the evening, when you have to give her your milk, first give her some mashed banana and then give her your milk. Bananas are cheap now-a-days.
Mamta : She will accept new food more easily when she is hungry. Remember anything you give her has to be well cooked mashed and without spices (masalas and chillies).

Mamta tells the mother to come next month for getting Salma weighed and leaves her house.

Some of the important features of the conversation are :

- AWW used the growth curve to explain to the mother that her child had not grown adequately.
- AWW took early action at the first sign of growth faltering.
- AWW first found out from the mother possible reasons for the child not growing adequately.
- She then suggested family foods which mother could afford.
- She made the mother start action on her advice while she was present at home.
- AWW displayed an attitude of concern for the child with patience and persistence.
- She asked relevant questions.

PICTURE 6.15: GROWTH CHART OF SALMA



PICTURE 6.16: AWW DISCUSSING GROWTH CURVE OF THE CHILD WITH THE MOTHER DURING HOME VISIT



6.7 SUPPLEMENTARY NUTRITION AT THE ANGANWADI

The old calorific norms fixed since the inception of the Scheme for Supplementary Nutrition Programme (SNP) at AWC were not adequately meeting the gap between the Recommended Dietary Allowance (RDA) and Average Dietary Intake (ADI), which meant that the desired impact in the incidence of malnutrition was not taking place. Therefore, taking into account the recommendations of experts, Government has decided to revise the old nutritional and feeding norms at AWC with

effect from 24.02.2009. The SNP at AWC needs to be organised as per the guidelines mentioned below.

a) Children (6 months to 3 years)

Food supplement of 500 Kcalories of energy and 12-15 gm of protein per child per day in Supplementary Nutrition Programme (SNP) should be provided. For children in this age group, the existing pattern of Take Home Ration (THR) under the ICDS Scheme shall continue. However, in addition to the current mixed practice of giving either dry or raw ration (wheat and rice), which is often consumed by the entire family and not the child alone, THR should be given in the form that is palatable to the child and is seen as food to be exclusively consumed by the child instead of the entire family. The THR could be given in the form of Micronutrient-fortified food and/or Energy-dense food that may be marked as 'ICDS Food Supplement'. Since a child under 3 years is not capable for consuming a meal of 500 Kcalories in one sitting, the AWW may advise mothers to give THR in small frequent meals to the child. The severely underweight children need to be provided food supplement of 800 Kcalories of energy and 20-25 gm of protein in the form of Micronutrient-fortified food and/or Energy-dense food as THR. Considering the inability of under-3 year old child (6 months to 3 years) to consume a meal of 800 Kcalories in one sitting, AWW needs to advise mothers to give THR in small frequent meals to the child. Severely underweight children requiring medical intervention may be given locally appropriate feeding and care under medical advice.

b) Children (3 to 6 years)

Food supplement of 500 Kcalories of energy and 12-15 gm of protein per child per day at the AWC needs to be provided to supplement home feeding. Arrangements should be made for serving Hot Cooked Meal in AWCs and Mini-AWCs under the ICDS Scheme. Since a child of this age group is not capable of consuming a meal of 500 Kcalories in one sitting, children who come to AWCs need to be served more than one meal. Since the process of cooking and serving hot cooked meal takes times, and in most of the cases, the food served around noon, these children may be provided 500 Kcalories over more than one meal. Arrangements may be made to provide a morning snack in the form of milk/banana/egg/seasonal fruits/Micronutrient-fortified food etc. For severely underweight children in the age group of 3 to 6 years, additional 300 Kcalories of energy and 8-10 gm of protein (in addition to 500 Kcalories of energy and 12-15gm of protein given at AWC) should be given in the form of Micronutrient-fortified food and/or Energy-dense Food as THR. Severely underweight children requiring medical intervention may be given locally appropriate feeding and care under medical advice.

c) Pregnant Women and Lactating Mothers

Food supplement of 600 Kcalories of energy and 18-20 gm of protein per beneficiary per day in the form of Micronutrient-Fortified Food and/or Energy-dense Food needs to be provided as THR. However, in addition to the current mixed practice of giving either dry or raw ration (wheat and rice), which is often consumed by the entire family and not the mother alone, it should be given in the form of Micronutrient-fortified food or Food that may be consumed by the pregnant and lactating mothers rather than the whole family.

6.8 REFERRING CHILDREN TO THE MEDICAL STAFF

In spite of your best efforts, suggestions, and appropriate response from mothers, some children do not grow. These are children in the moderately and severely underweight grades. These children need to be shown to the health staff, such as the ANM or LHV or the Medical officer of the health centre. They can be either advised to go to the health centre or to show the child during the visit of health staff at the AWC. Remember that quick action is required to prevent the condition of these children from becoming worse.

- 6.8.1 During the visit of the medical staff at the AWC, discuss the condition of those children whose weights have not increased. Also, take this opportunity to get examined those children who have flat or downward curves.
- 6.8.2 In case the visit of the health staff is not expected for some days, ask the mother to go to the nearest health centre. In some cases, it may be necessary for the AWWs to accompany the mothers of severely underweight children to the health centre. Referral is not a means of removing your responsibility from the child. It is only to take medical help to resolve the problem of underweight child. You have to follow up with the mother after her visit to the health centre and support her in improving the health of her child.

DISCUSS CHILD'S GROWTH WITH MOTHER, COUNSEL AND FOLLOW UP

Explain to the mother the growth and development of the child using Mother & Child Protection Card

Praise the mother if the child is growing well and encourage her to follow good caring practices

Prioritise and list children who are not growing well

Plan for discussing the problem with their mothers & families. While discussing the problem, it is important to keep the discussion positive and it should be in a soft and familiar language

Show the Growth Chart of the child to the mother and explain the direction of the Growth Curve/ position of the plotted point. Use Mother & Child Protection Card

Counsel mothers on improved child care practices for infant and young child growth and development

Talk to the mother using the following communication and counselling skills:

Ask the mother questions about caring practices, especially feeding, current or previous illness and about immunisation

Listen to the mother and try to ascertain the cause of the problem

Praise and compliment the mother for all the good things she is doing

Advise the mother, as per the problem, about nutrition care and feeding the child

Check understanding of the advise given to the mother

Convince the mother to bring the child regularly to AWC on monthly Village Mother Child Health Day for key services

Build confidence in the mother and encourage family support

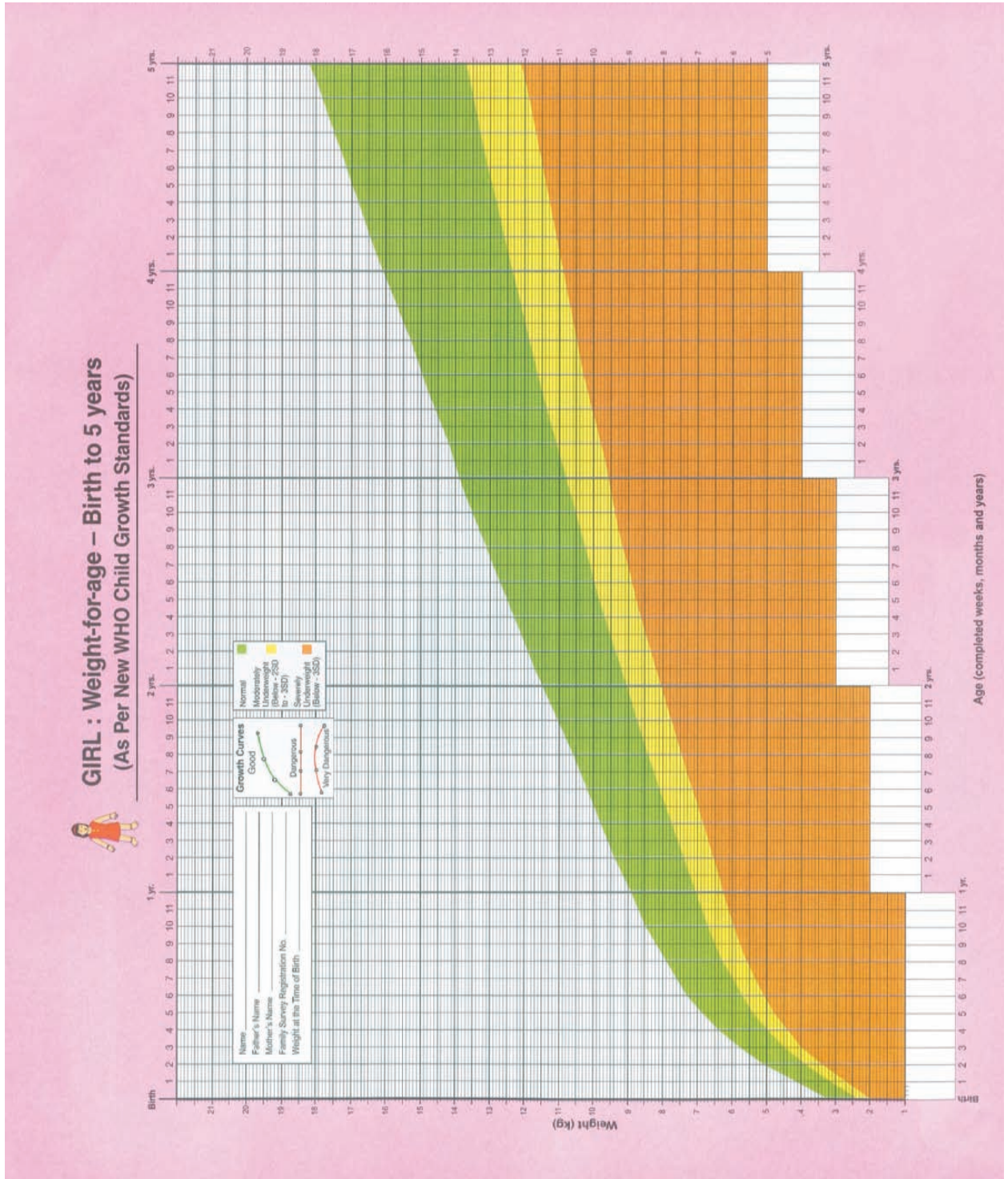
Explain to the mother and the family that feeding, playing and communicating with children helps them grow and develop well

Discuss 'developmental milestones' of the child with the mother and the family. If there is a delay in reaching a particular milestone or the child seems slow, advise to increase feeding, talking and playing. If the child is still slow, refer the child to a doctor/health facility

Follow up severely underweight children. Make home visits

Reinforce messages

EXERCISE-10



Complete the following exercises. These exercises will give you practice in plotting weight, deciding the age specific advice the mother needs. You could do a role play on these exercises to develop communication skills.

- (A) On 8th November 2005, the dai told you that Rema gave birth to a baby girl, two days back. You go to Rema's house.

Child's Name	Neeta
Mother's Name	Rema
Father's Name	Shiva
Family Registration Number	96

Fill in Neeta's growth chart.

- (B) The dai, who delivered the child, said Neeta weighed 2.3 kg when she was born. Plot this weight on the growth chart.

- (C) 1) Is Neeta's birth weight adequate?
2) What points would you discuss with Neeta's mother on a home visit shortly after the birth?

- (D) 1) In December 2005, Neeta weighed 2.7 kg. Plot this weight on her growth chart.
2) Is the gain in weight adequate? Why or why not?
3) What would you say to Neeta's mother at this time?

- (E) Neeta's weight on subsequent months were:

14 January 2006	3.4 kg
28 February 2006	4.1 kg
16 March 2006	4.5 kg

Plot these weights on Neeta's growth chart.

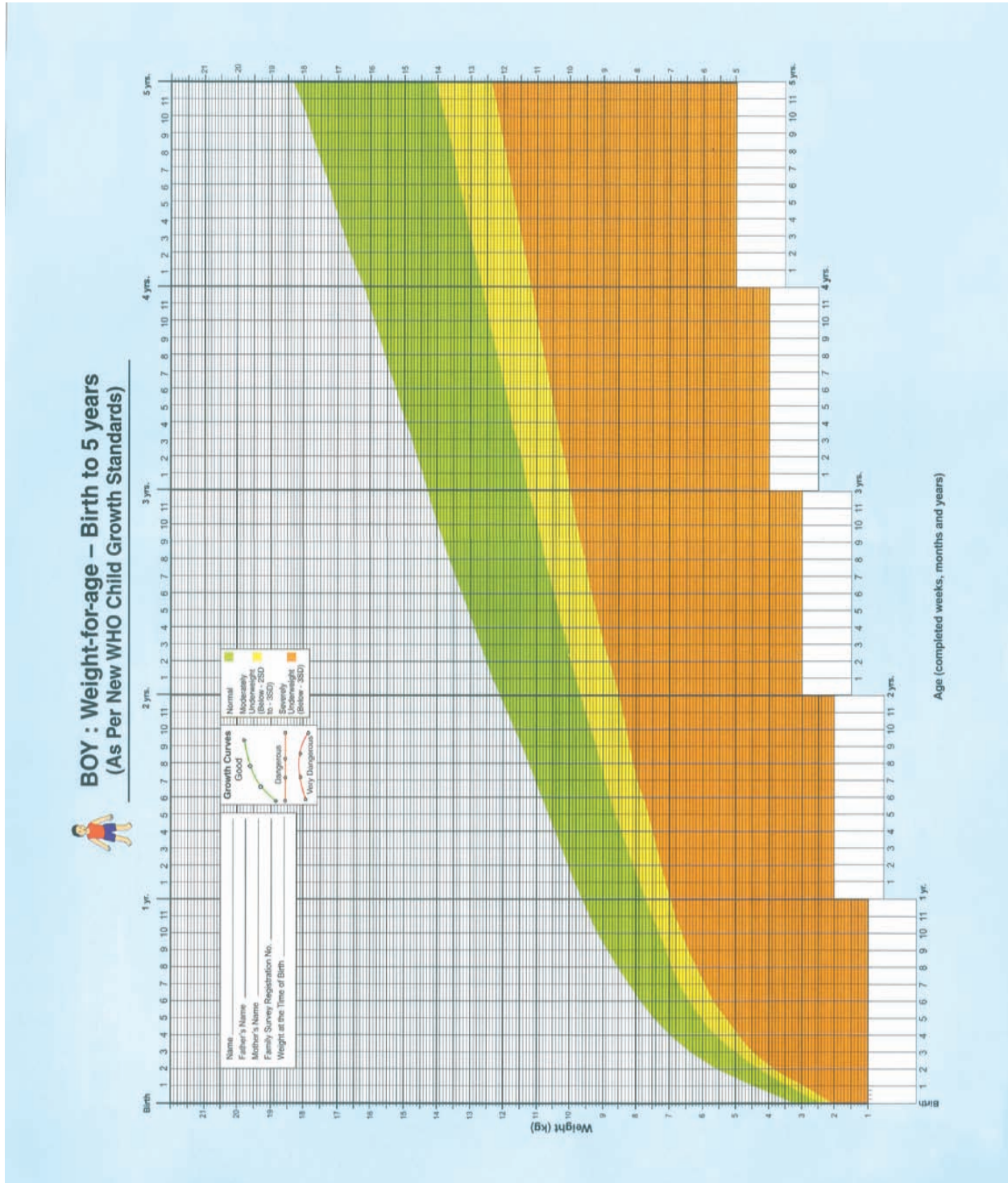
- 1) What is the direction of the growth curve from December 2005 until March 2006 ?
2) Is this good ?
3) How would you describe Neeta's overall growth in relation to her nutritional grade during this time?
- (F) What would have happened if Neeta was a male child?

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

BLANK GROWTH CHART FOR NEETA (EXERCISE 10)

E) On 13 February 2006, Dharam Pal again weighed 6.0 kg. Plot this weight on his growth chart?



1) What is the direction of the growth curve from December 2005 until February 2006 ?

2) What is Dharam Pal's nutritional grade in February 2006 ?

3) How would you describe Dharam Pal's growth from December to February in relation to his nutritional grade ?

4) What would you do and say to Dharam Pal's mother in February 2006 ?

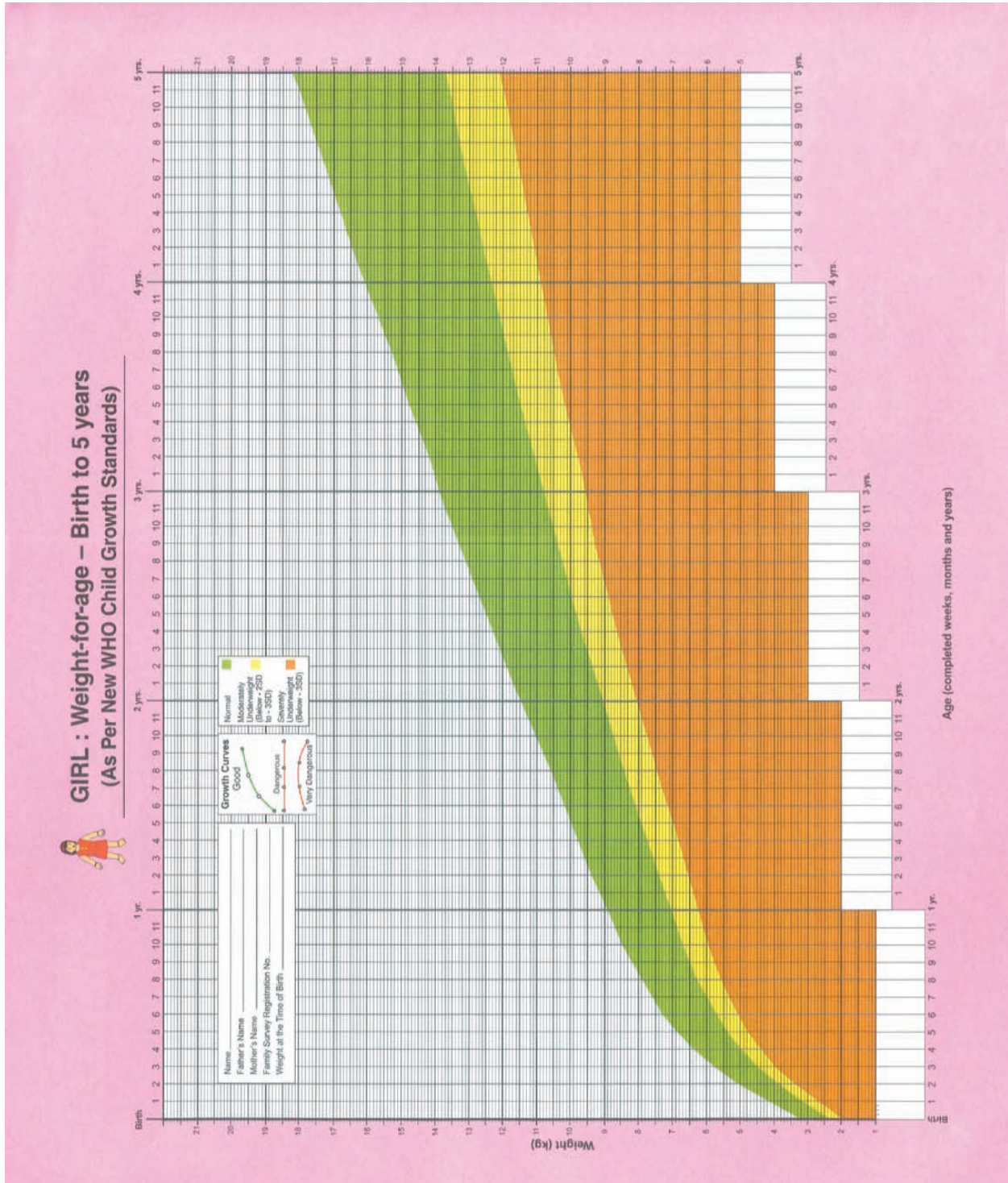
Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

BLANK GROWTH CHART FOR DHARAM PAL (EXERCISE 11)



EXERCISE-12



(A) You asked Rema when her daughter was born. She answered that Ritu was born on Mahatma Gandhi's birthday in 2006. Ritu's father's name is Rajesh. Family Survey Registration Number is 27.

Fill in Ritu's growth chart.

(B) Since Rema was with her mother, Ritu came to the Anganwadi in May 2007. She weighed 5.5 kg. Plot this weight on the growth chart.

1) How many months old is Ritu now ?

2) What would you discuss with Ritu's mother at this time ?

(C) On 17th June 2007, Ritu weighed 5.5 kg.

1) What would you recommend to Ritu's mother in June 2007 ?

(D) Ritu's weight in subsequent months were :

6th July 2007 5.8 kg

10th August 2007 6.0 kg

12th October 2007 6.5 kg

Plot these weights on Ritu's growth chart.

1) From June until October 2007 describe the direction of the growth curve ?

2) Is this good ?

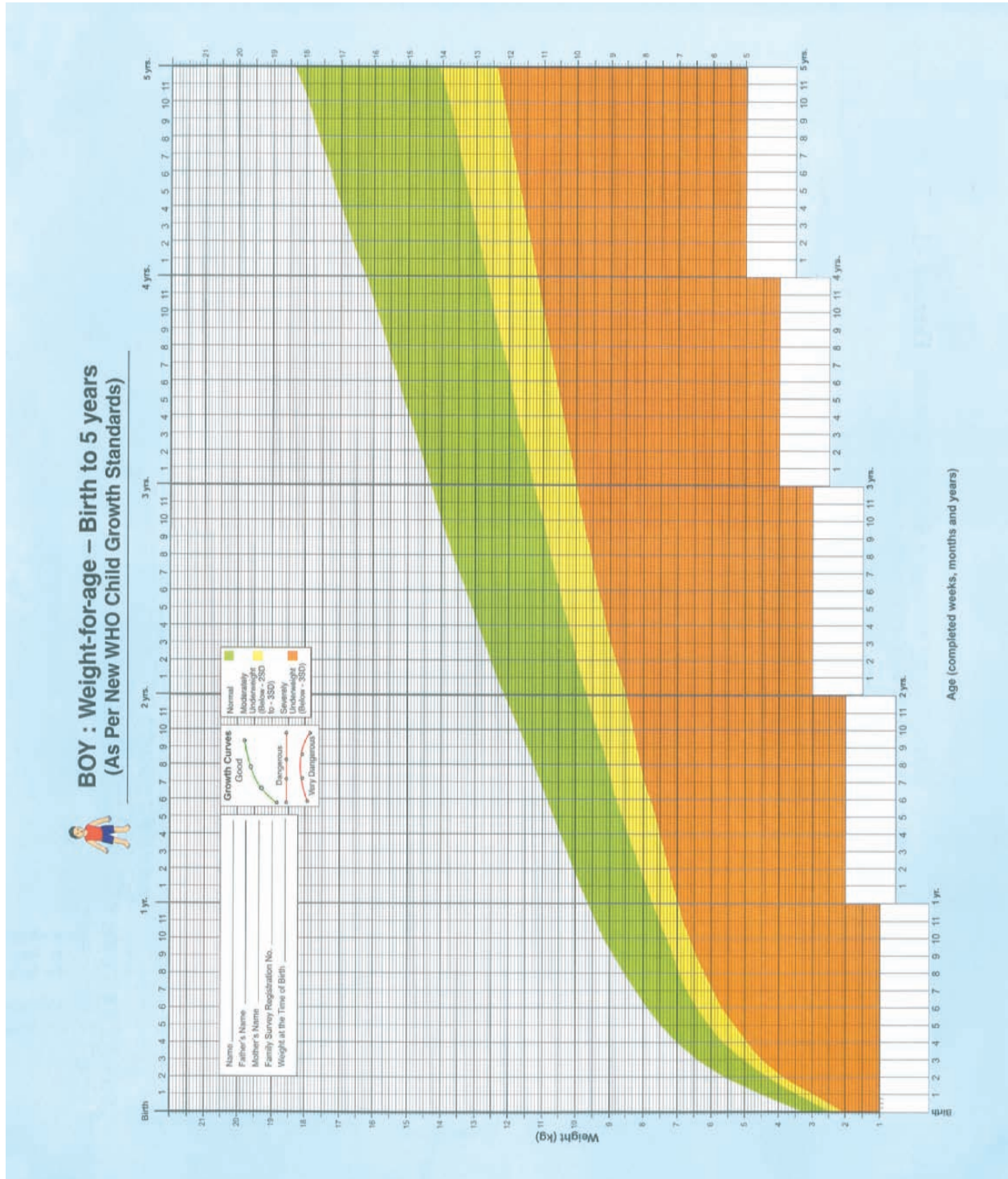
3) What would you tell Ritu's mother during this time ?

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

BLANK GROWTH CHART FOR RITU (EXERCISE 12)

EXERCISE-13



CHEPTER - VII

**ORGANISING AND ACCOMPLISHING THE TASK
OF GROWTH MONITORING**

After reading this chapter, the reader will be able to:

1. Know the ways by which the AWW can accomplish and organise the task of growth monitoring; and
2. Know that participation of the mothers is necessary to do successful growth monitoring.

REMEMBER:

COVER ALL CHILDREN < 5 YEARS OF AGE IN YOUR AREA, IRRESPECTIVE OF WHETHER OR NOT THE CHILD ATTENDS AWC.

The task of growth monitoring can be said to have been accomplished when the worker weighs every beneficiary child at birth and in the age group from birth to 3 years at the interval of one month; weighs children 3 to 5 years quarterly, discusses with the mothers about the child's monthly progress, especially with mothers of children in the age group from birth to 3 years and older children who are not growing or are underweight.

REMEMBER:

DURING FIRST FEW MONTHS THE WEIGHT OF THE CHILD INCREASES VERY FAST SO ALL EFFORTS MAY BE MADE TO WEIGH THE CHILD WEEKLY.

7.1 MAKING THE COMMUNITY AWARE OF THE IMPORTANCE OF GROWTH MONITORING

The first step towards accomplishing this task is to make the community, especially the mothers, aware of the real reasons and objectives of growth monitoring. They must not perceive the activity as a task which the AWW has to do to complete her records for submission at the end of the month. They must understand that:

- their children are weighed so that their growth can be closely monitored.
- it is their own responsibility to get their children weighed and inquire about their growth.
- it is their responsibility to ensure normal weight gain of the child.

7.1.1 Although these seem very easy to talk about, yet to get the community at a stage where they come on their own to get the child weighed and are concerned about the weight gain, is a process which takes time and conscious efforts on the part of all the functionaries. If the ICDS functionaries are convinced of the use of growth monitoring to ensure health of children, they can in turn, convince the mothers.

7.1.2 The community should be made aware of the importance of growth monitoring to ensure their children's health. This can be done during individual contact with the mothers, or during a mothers' meeting. It should be ensured that the following target groups are made aware of growth monitoring messages:

- i) mothers who have children below 3 years age group;
- ii) mothers of underweight children;
- iii) pregnant women in the last trimester; and

iv) ASHA/TBA

7.1.3 The functionaries should explain the following points to the community.

- the children are weighed not simply for submitting records at the end of the month;
- there is a chart in the name of each of their children in the register; after weighing the child, the weight is plotted on this chart;
- every healthy child, especially in the first three years, must gain weight every month. Child is weighed to see whether he has put on adequate weight this month also;
- gain in weight depends on the optimal nutrition, optimal health and optimal environment child gets;
- if the child gains weight, the growth curve will move upwards;
- if the child has not gained weight, or has lost weight, the growth curve will go straight or downward. This is not good and the child is not healthy;
- if the child has gained adequate weight, it is due to the mother's efforts and she should be encouraged to continue;
- if the child has not gained weight, or has lost weight, it is the mother who has to take action (feed him properly, take care when child is ill etc.) to ensure growth of the child;
- if the child falls sick, the weight loss can be minimised by taking good care: taking medical help, if required, on time; not discontinuing food/breast milk during illness; giving adequate fluids during diarrhoea;
- if we do not weigh children every month, we will not be able to know whether the child is sick, or is becoming underweight, after she starts looking sick; and
- children in the age group from birth-3 years are dependent on them (mothers) to be brought to AWC for weighing.

PICTURE 7.1: AN ANGANWADI WORKER ORGANISING GROWTH MONITORING SESSION OUTSIDE THE ANGANWADI CENTRE



PICTURE 7.2 : AN AWW DISCUSSING A CHILD'S GROWTH WITH HER MOTHER



7.1.4 The supervisor can play an important role in convincing the mothers on these issues. The meeting should discuss the wrong ideas or beliefs the mothers have regarding growth monitoring. A mother, who is regular in bringing the child for weighing and follows the actions suggested by AWW, could be used as an example.

7.1.5 During individual contact, if the AWW makes it a practice to show the mother the growth curve of the child and follow up with her the advice given last month, she will learn to appreciate the purpose of growth monitoring.

REMEMBER:

TO GET THE FULL BENEFIT OF GROWTH MONITORING, THE COMMUNITY MUST BE MADE AWARE OF ITS BENEFITS IN PROMOTING CHILD HEALTH.

7.2 ORGANISING GROWTH MONITORING SESSION

Organising a meaningful growth monitoring session involves weighing the child, plotting weight on the growth chart, discussing the growth curve with the mother and deciding actions that she has to take to improve child's growth. Ideally, all these tasks should be done at one time. However, the AWW requires adequate time to discuss with the mother, the child's growth, especially with those whose children have lost weight, or have not gained weight. Suggested below are some ways of organising growth monitoring sessions:

- AWW can fix the dates in such a way that small groups of 5-7 mothers can be called at one time. On the first day, she can call mothers with children under one year of age. On the second day, she can call mothers of children from 1-3 years. She should take help of the mothers in the weighing process. In this way, AWW can weigh and discuss the growth of the child and problems of and specific actions to be taken for, each child.
- Take the weighing scale and the growth chart register to one part of the village on one day and to another part of the village the next day where a number of houses are clustered together. This will make it easier for the mothers to attend these sessions, especially in the hilly areas.
- If there are large group of mothers who have come at one time, the AWW would note down the weights and then discuss the growth curve with the mother during home visit. But, this should be done within the next few days.

7.2.1 The AWW can think of other ways to accomplish the task of weighing. She should ensure, that the weight is taken after a gap of one month. She should remember that her work does not end at weighing the child and plotting the weight on the growth chart. Sharing the weight gained by the child, as compared to the last month's weight, and deciding appropriate action, if required, are the most important steps in growth monitoring to ensure the growth of the child.

REMEMBER:

TASK OF GROWTH MONITORING IS NOT ACCOMPLISHED BY JUST WEIGHING THE CHILDREN REGULARLY. WHAT IS MORE IMPORTANT IS TO SHARE THE GROWTH CURVE WITH THE MOTHER.

CHAPTER - VIII

ROLE OF SUPERVISOR IN GROWTH MONITORING

After Reading this chapter and completing the exercises suggested at the end, the reader will be able to know:

1. the role of the supervisor as a guide and trainer of AWWs in growth monitoring;
2. the direct responsibility of the supervisor in growth monitoring of severely underweight and 'at risk' children;
3. the points the supervisor should observe in a growth chart register maintained by the AWW during her visit to AWC; and
4. the role of the supervisor in making the community aware of the importance of monitoring the growth of their children.

JOB RESPONSIBILITIES OF SUPERVISORS RELATED TO GROWTH MONITORING

The ICDS supervisor has an important role to play in ensuring that growth monitoring of children from birth to 5 years is done properly by the AWWs. The job responsibilities of a supervisor directly related to growth monitoring are:

- i) to guide the AWW in assessment of correct age of children, accurate weighing of children and correctly plotting their weights on the growth chart, especially in respect of severely underweight children;
- ii) to check the weights by actually weighing severely underweight children and guide the AWW in their management;
- iii) to visit homes of severely underweight children and 'at risk' mothers and guide mothers about proper care in such cases;
- iv) to check the records of AWWs and guide them in proper maintenance of records (here reference is to the growth chart register);
- v) to give continuing education to AWWs and ANMs at each circle level meeting;
- vi) to ensure that weighing scales are available at the AWCs and are in working condition; and
- vii) to check the stocks of supplies, such as supplementary nutrition, medicines, material for pre-school education, registers records etc. and report shortages to the CDPOs.

8.1 The list of jobs clearly indicates that, during her visit to AWC, and during monthly meetings, the supervisor has to perform the following work.

8.1.1 Guiding and training the AWWs in the following tasks:

- a) assessment of correct age of children;
- b) accurate weighing of children;
- c) plotting weights on growth charts correctly;
- d) proper counselling of mothers to promote growth; and
- e) discuss issues related to growth monitoring during circle level meetings.

8.1.2 Monitoring the growth of severely underweight children by:

- a) checking weight by actual weighing;
- b) visiting homes of severely underweight children; and
- c) guiding AWWs and mothers in the management of severely underweight children.

8.1.3 Administrative responsibilities

- a) Check if the weighing scale is in working order and arrange for its repair, if required.

- b) Check the supply and maintenance of the growth chart register.
- c) Check the adequacy of other supplies, including supplementary nutrition, and report to CDPO for their timely replenishment.

REMEMBER:

THE SUPERVISOR HAS TO BE A GUIDE AND TRAINER TO THE AWW TO ENSURE PROPER GROWTH MONITORING. THE SUPERVISOR HAS THE DIRECT RESPONSIBILITY OF MONITORING GROWTH OF SEVERELY UNDERWEIGHT CHILDREN.

Let us now discuss in detail, the tasks of a supervisor in growth monitoring.

8.2 SUPERVISING AND GUIDING THE ANGANWADI WORKER

Supervisor has to guide and train the AWWs in developing necessary skills required for growth monitoring. The supervisor should develop the ability to observe the work done by the AWWs and identify mistakes/shortcomings and correct the same by demonstrating the right procedure.

8.2.1 A supervisor can assess the skills of an AWW in weighing, plotting and discussing the growth of children with mothers by going through the growth chart register and by observing her while she is doing these tasks. The aim of the supervisor should be to develop, in the AWW, those skills which she lacks and also to develop the right approach and attitude towards this task. The Supervisor should be able to make her appreciate growth monitoring as a means of detecting early growth faltering, especially in children in the age group from birth-3 years, and as a tool for giving individualised nutrition and health education to mothers.

REMEMBER:

SUPERVISOR SHOULD DEVELOP THE ABILITY TO OBSERVE THE WORK OF THE AWW, IDENTIFY MISTAKES/SHORTCOMINGS, IF ANY, AND CORRECT THESE BY DEMONSTRATING THE RIGHT PROCEDURE.

Given below are some important points which may be kept in mind while supervising the task of growth monitoring:

8.2.2 Looking at the Growth Chart Register

- a) From the index of this register, the supervisor should see:
 - the total number of growth charts maintained for-
 - Birth-three years old children
 - 3 years to 5 years old children
 - Number of new growth charts added since her previous visit, especially of newly born babies.
 - Whether the names of children older than 5 years have been crossed out.
 - The total number of growth charts maintained in the two categories should tally with the number of children registered for various services at the AWC. Supervisor should ensure that every child should have a growth chart. If growth charts for all the children are not maintained, supervisor should find out the reasons and discuss with the AWW ways of ensuring weighing of these children every month. She can

suggest to the AWW different ways of reaching all the children. Some of these have been discussed in Chapter - IV.

- If the supervisor is visiting after a gap of 1 month, there would be 1-2 new births in the village. She should inquire about the new born babies from the AWW and pay a visit to their homes. Supervisor should check if the growth monitoring of these children has been started. She should stress the need to start monitoring the growth of new born babies from birth. She should ask the AWW about any problem related to weighing new born babies and find the ways of solving this either by personally talking to the mother or by taking help of other functionaries like ASHA, TBA or ANM.
- b) Supervisor should then look at the growth charts and find out –
- Number of children who have gained adequate weight, lost weight or not gained weight, as compared to the last month's weight; and
 - Number of children in the moderately underweight and severely underweight grades. See if these children have gained weight since the previous month.
- c) Supervisor should randomly check 7-10 growth charts and see whether:
- information box is filled;
 - date, month and year of birth, as mentioned in the index of the register, is written in the first white box and its margin in the month axis;
 - all the month boxes are filled up to 60 months;
 - weights of children are taken and plotted every month;
 - weights of new born are taken and plotted preferably at every completed week;
 - in the Month Axis, weights of the children are written below the month on which weight was taken;
 - weight plotting is up to date;
 - weights are plotted correctly to the nearest 100 grams; and
 - weight points are joined to form the growth curve.

The supervisor should explain the mistakes or shortcomings in filling up the growth chart and make the AWW correct the mistakes in her presence.

REMEMBER:

SUPERVISOR SHOULD ENSURE THAT GROWTH OF ALL CHILDREN ESPECIALLY FROM BIRTH TO 3 YEARS IS MONITORED EVERY MONTH AND GROWTH MONITORING OF NEW BORN BABIES IS STARTED FROM BIRTH AND IS DONE PREFERABLY EVERY WEEK IN THE FIRST MONTH.

8.2.3 Assessment of Correct Age

The supervisor should find out from the AWW how she had determined the age of the child. It could be by looking at records with the parents, like the discharge papers of the PHC/Sub centre/hospital that she had noted down the date of birth as soon as the baby was born, Mother and Child Protection Card, birth certificate, by questioning the mother, or by using the local events calendar. The supervisor should cross check the date of birth of a few children by talking to the mothers herself. If the AWW has made any mistake in assessing the date of birth of the child, she should explain the mistake to the AWW.

8.2.4 Observing the Weighing of Children

For this, the supervisor can select the growth chart of a child who is less than one year and who is not gaining or losing weight. She can ask the AWW to call mother and the child to the AWC, or they can together visit the home of this child. This will give her an opportunity to assess the skills of AWW in weighing younger children, assessing their age and giving relevant nutrition and health education to mothers.

While the AWW weighs the child, the supervisor should observe whether:

- the scale is assembled correctly.
- the scale is at eye level.
- the scale is hung securely.
- zero error is corrected at the beginning of weighing with the basket pants.
- the mother is encouraged to participate in weighing by asking her to put the child in the basket or holding the bar in case of bar scale etc.
- the AWW knows the technique of balancing the bar in case of bar scale.
- the AWW observes all the precautions needed for weighing a child safely, especially in case of bar scale.
- the AWW asks mother to remove chappals/shoes, heavy dress like blazer etc. heavy ornaments, if any of the child before weighing.
- the AWW does not touch the scale below the dial/bar while reading the weight.
- the AWW reads the weights correctly to the nearest 100 grams.
- the AWW takes the child out of the basket safely with the help of mother/helper.

Wherever AWW deviates from the above procedure, Supervisor should guide the AWW by demonstrating the right procedure.

8.2.5 Discussing the Growth of the Child with the Mother

Supervisor should ask the AWW if she discusses the growth of the child with the mother. She should find out from the AWW:

- When does she discuss the growth chart with the mother (immediately after weighing; within a few days after weighing, during home visits, when the mother comes to the AWC; whenever AWW finds time);
- Whether she shows the growth chart to the mother and explains the concept of direction of the growth curve to the mother; and
- Whether she discusses the growth chart with all the mothers or only with those whose children are not growing, or whose children are severely underweight.

The supervisor should confirm these facts by talking to a few mothers herself during home visits, or at the AWC. The supervisor should impress upon the AWW that she should show and discuss the growth chart with the mother either immediately or within a few days of weighing the child.

To assess the skills of AWW in imparting nutrition and health education, the supervisor should listen to the AWW while the AWW talks to a mother. She should then give her concrete suggestions to improve the communication of messages and also tell her the positive points of her communication.

It would be more effective and helpful to the AWW, if the supervisor can demonstrate the discussion of the growth chart with the mother. The supervisor should stress on the AWW to listen to the mother before giving any advice in order to find out the reasons for adequate weight gain, no weight gain or loss of weight. The AWW must remember that the mother knows the most about her child and she is the person who can make the changes to improve the child's growth. The AWW should give specific advice the mother needs at that time.

REMEMBER:

SUPERVISOR SHOULD DEMONSTRATE THE SKILLS OF DISCUSSING THE GRWOTH CHART WITH THE MOTHER.

8.3 ORGANISING TRAINING IN GROWTH MONITORING

She could periodically organise discussions on topics related to growth monitoring in circle meeting; arrange training on correct weighing and plotting, interpreting curve to the mother etc. with the help of experienced AWWs, trainers of AWWs or experts in this field, if available.

8.4 CREATING AWARENESS OF THE COMMUNITY REGARDING GROWTH MONITORING

Supervisor should take a lead role in creating awareness among the mothers about the importance of growth monitoring. This can be done through individual contact, or during mothers meetings. Supervisor should find out from the AWW the problems of her area and attitude and perceptions of mothers about getting their children weighed. She should then work towards correcting the wrong concepts and reinforcing the right ones.

8.5 MONITORING THE GROWTH OF SEVERELY UNDERWEIGHT CHILDREN

Monitoring the growth of severely underweight children is also the direct responsibility of the supervisor. During her visit to the AWC, supervisor should check the weight of the severely underweight children by actually weighing. She should observe the growth curve of these children and see if the direction is upward, flat or downward. The supervisor should then discuss the growth of each child with the mother and AWW to promote adequate growth in these children.

8.5.1 Let us look at some more details on discussing growth of the severely underweight child with the mother.

8.5.2 To discuss the growth of these children, the supervisor should visit the homes of these children. During her visit, she should show the growth chart to the mother and explain to her the direction of the growth curve. She should make the mother understand that her child is "very weak" and needs immediate action on her part. Supervisor can also compare the growth curve of the child with that of a healthy child of the same age.

8.5.3 The supervisor should find out from the mother about food habits of the child, amount of food he takes, any recent illness, past history of any illness etc. She should then try to find out the possible causes of underweight by talking to the health staff and the AWW. The cause(s) of underweight can be one or more from amongst those given below:

- Repeated infections, such as diarrhoea, measles, worm infestations etc., due to, unhygienic environment, unsafe drinking water, bottle-feeding etc.;
- Lack of required food in terms of quality and quantity, due to low family income and large family size, food fads, lack of understanding of the nutritional needs of the child;
- Delayed introduction of additional foods resulting in child not accepting any food other than milk;
- Sudden discontinuation of breast milk without introduction of supplementary foods, due to conception of the next child or sickness of the mother; and
- Child suffering from a chronic disease like tuberculosis, inability to digest milk etc.

8.5.4 A child, who is born with a low birth weight or is in the 'at risk' category and who encounters any of the causes listed above, is prone to suffer from severe underweight.

8.5.5 Depending on the cause of underweight, supervisor should:

- Ask the mother to show the child to the doctor to take care of infections and any chronic disease which the child may have. In view of the severity of underweight and associated infection, the child may need hospitalisation. The child can be seen by the doctor either during the visit of the health staff to the AWC or at the sub centre/hospital whichever is earlier. The supervisor should inform the family the date and time of the doctor's visit at the AWC or location, timing of the PHC/sub-centre/hospital;
- Ask the mother to bring the child to the AWC for supplementary feeding immediately, in case the child does not need hospitalisation, or after the child is discharged from the hospital. Supervisor should explain to the mother the need to give supplementary food to the child and the need to give it in small, frequent feeds and not to share the food with other members of family. The AWW should ensure that the mother gives one feed at the AWC and carries back the rest with her;
- Ask the mother that, if possible, 1-2 teaspoon of extra oil/ghee, be added to the child's food at each meal;
- Demonstrate the preparation of Micronutrient-fortified food and/or Energy-dense food to the mother to provide adequate and balanced Kcalories and protein intake through the food. Recipes of such foods is given in Annexure - III. For the severely underweight children, States/UTs may provide food supplement of 800 Kcalories of energy and 20-25 grams of protein in the form of Micronutrient-fortified food and/or Energy-dense food as Take Home Ration (THR). Considering the inability of under 3 years old child (6 months to 3 years) to consume a meal of 800 Kcalories in one sitting, the State Governments/ UTs may consider advising mothers to give THR in small frequent meals to the child. Severely underweight children requiring medical intervention may be given locally appropriate feeding and care under medical advice.

- Advise mother to take quick action in case the child has any illness. Give oral rehydration solution and other fluids in case the child has diarrhoea. Mother should continue to feed the child during illness etc;
- Explain to the mother that recovery of a severely underweight child takes time (2-4 months) and that she should not expect miracle by taking the child to the doctor or by feeding supplementary nutrition given at the AWC; and
- Ask the mother to get the child weighed after one month interval to see the change in weight.

8.5.6 A onetime advice to the mother of a severely underweight child is not enough. The supervisor and the AWW have to follow up the child and this mother during their subsequent visits, by looking at the weight gain and talking to the mother to find out how much advice she has followed. Supervisor should encourage the mother if the child has gained weight.

REMEMBER:

THE SUPERVISOR SHOULD MAKE AWW APPRECIATE GROWTH MONITORING AS A MEANS FOR DETECTING EARLY GROWTH FALTERING ESPECIALLY FOR INFANTS AND CHILDREN BELOW 3 YEARS, AND NOT ONLY FOR DETECTING UNDERWEIGHT.

EXERCISE-14

Go through the growth chart register maintained at an AWC. Note down the

- (i) total number of growth charts maintained.
- (ii) number of growth charts maintained from birth to 36 months old children.
- (iii) number of growth charts maintained for 3-5 years old children.

Check these figures with the number of children in these age groups registered at the AWC for other services.

- (iv) Now, note down the number of growth charts with
 - adequate upward curve
 - flat curve
 - downward curve

EXERCISE-15

While going through the growth charts during your visit to an AWC on 17 June 2009, you see the growth chart of Lata. From the index, you see that Lata's birth date is 2 February 2006. The growth chart of Lata is given in the next page. Observe the growth chart.

(1) What are the mistakes/omissions in this growth chart.

- i) _____
- ii) _____
- iii) _____

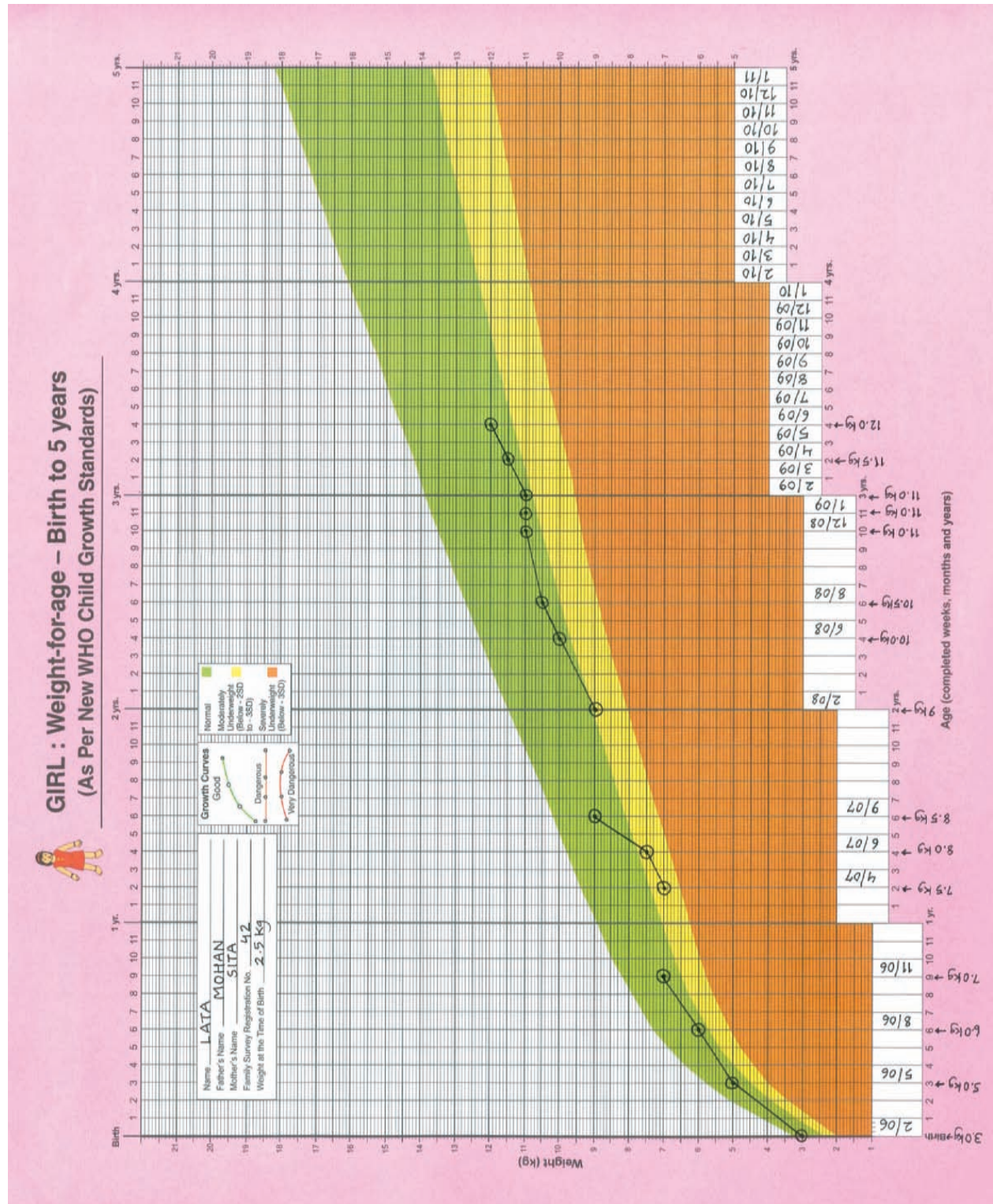
(2) How will you explain these points to the AWW?

- i) _____
- ii) _____
- iii) _____

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

GROWTH CHART OF LATA (EXERCISE 15)



EXERCISE-16

(A) Observe the growth chart of Nalani.

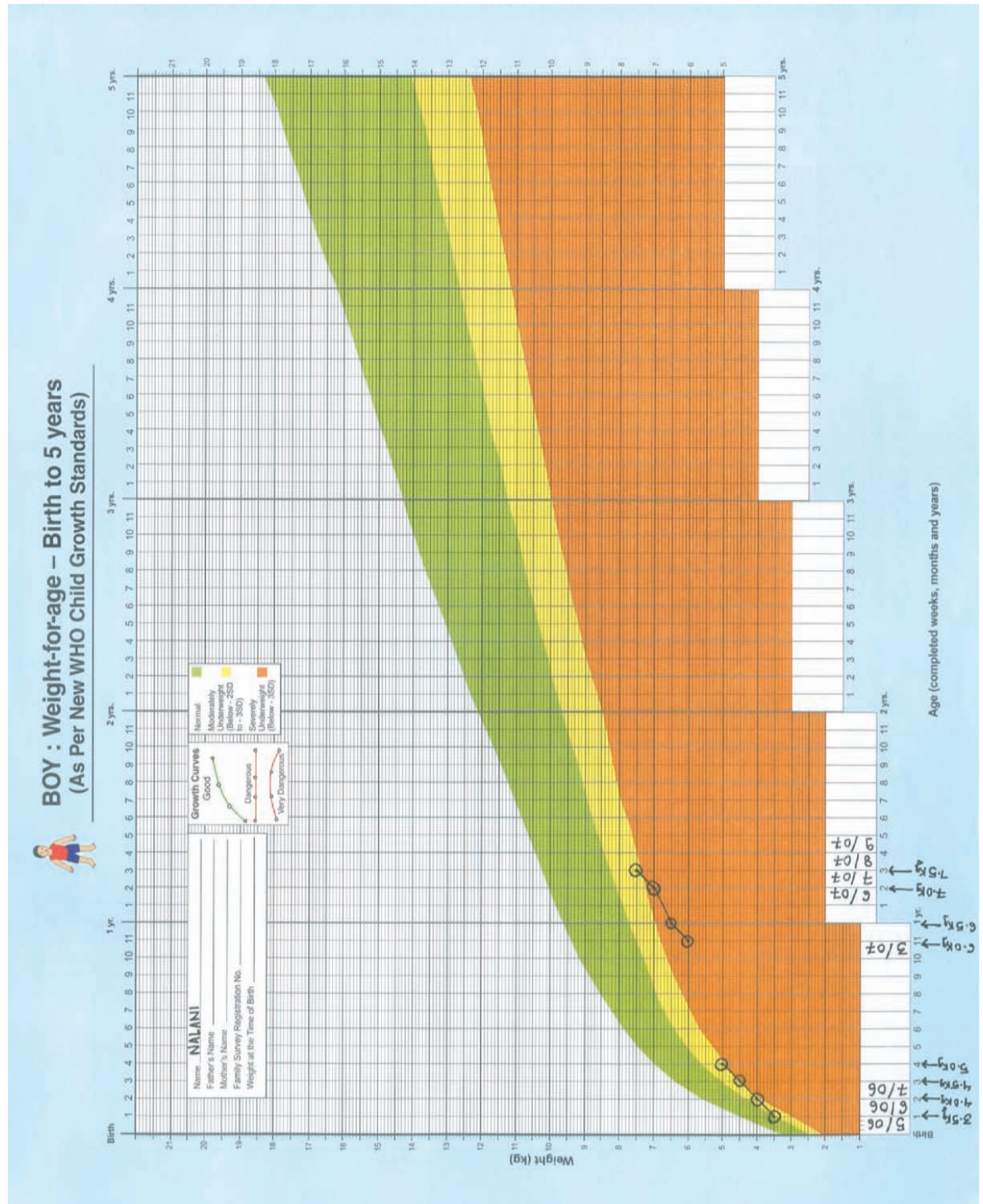
1. What are the omissions/observations in this growth chart?

2. How will you explain these to the AWW?

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

GROWTH CHART OF NALANI (EXERCISE 16)



EXERCISE-17

- (1) You are on your visit to one of your AWC in the month of August 2007. While going through the growth chart register, you observe that there are a total of 45 growth charts maintained, 30 growth charts are of children 3-5 years and 15 growth charts are of children from birth to 3 years.

What will you do if you observe these facts?

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again.

EXERCISE-18

You are going for a home visit to the house of a child, whose name is Rashmi, in October 2007. The growth chart of the child is given on the next page. You ask the AWW to discuss the child's growth with the mother. Given below is the conversation of the AWW with the mother :

AWW greets the mother and asks her if she is free. The mother Invites her to sit on the charpai and offers her water. The AWW tells the mother that her daughter, Rashmi, has not gained weight and that she should take more care of her. She tells the mother to give her soft foods like banana, well-cooked khichri, boiled potato, mango, khir etc. She tells the mother that the AWC is very close to her house and that she should make use of the services it provides. The mother nods her head.

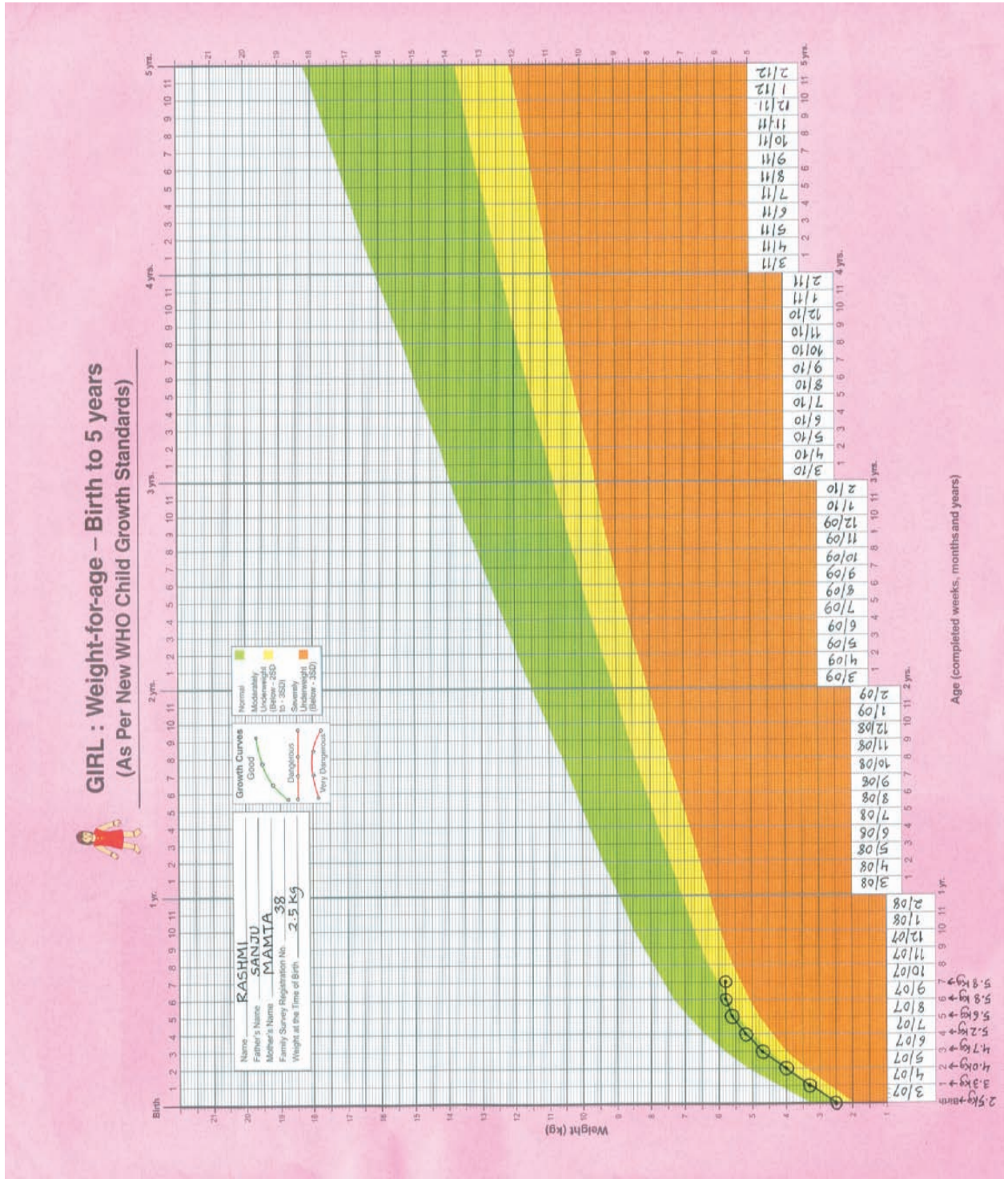
(A) What are the mistakes/shortcomings in this conversation ?

- i) _____
- ii) _____
- iii) _____
- iv) _____

Check your answers from Annexure - V.

If any of your answers is incorrect or incomplete, go back to the chapter and read the concerned portion once again

GROWTH CHART OF RASHMI (EXERCISE 18)





ANNEXURES



ANNEXURE-I



LOCAL EVENTS CALANDER

Festivals	2003	2004	2005	2006	2007	2008	2009
LOHRI	13.1.03	13.1.04	13.1.05	13.1.06	13.1.07	13.1.08	13.1.09
MAKAR SANKRANTI	14.1.03	15.1.04	14.1.05	14.1.06	14.1.07	14.1.08	13.1.09
ID-UL ZUHA/ BAKRID	12.2.03	2.2.04	22.1.05	11.1.06	1.1.07	9.12.08	28.11.09
REPUBLIC DAY	26.1.03	26.1.04	26.1.05	26.1.06	26.1.07	26.1.08	26.1.09
BASANT PANCHMI	6.2.03	26.1.04	13.2.05	2.2.06	23.1.07	11.2.08	31.1.09
MOHARRAM	14.3.03	2.3.04	20.2.05	10.2.06	30.1.07	19.1.08	8.1.09 28.12.09
MAHA SHIVRATRI	1.3.03	18.2.04	8.3.05	26.2.06	16.2.07	6.3.08	23.2.09
HOLI	19.3.03	6.3.04	25.3.05	14.3.06	4.3.07	22.3.08	11.3.09
GOOD FRIDAY	18.4.03	9.4.04	25.3.05	14.4.06	6.4.07	21.3.08	10.4.09
BAISAKHI	13.4.03	13.4.04	13.4.05	13.4.06	14.4.07	13.4.08	13.4.09
RAM NAVMI	11.4.03	30.3.04	18.4.05	6.4.06	27.3.07	14.4.08	3.4.09
MAHAVIR JAYANTI	15.4.03	3.4.04	22.4.05	11.4.06	31.3.07	18.4.08	7.4.09
BUDH PURNIMA	16.5.03	4.5.04	23.5.05	13.5.06	2.5.07	20.5.08	9.5.09
INDEPENDENCE DAY	15.8.03	15.08.04	15.08.05	15.08.06	15.08.07	15.08.08	15.08.09
RAKSHA BANDHAN	12.8.03	30.8.04	19.8.05	9.8.06	28.8.07	16.8.08	5.8.09
JANMASHTMI	20.8.03	7.9.04	27.8.05	16.8.06	4.9.07	24.8.08	14.8.09
GANESH CHATURTHI	31.8.03	18.9.04	7.9.05	27.8.06	15.9.07	3.9.08	23.8.09
GANDHI JAYANTI	2.10.03	2.10.04	2.10.05	2.10.06	2.10.07	2.10.08	2.10.09
DUSHEHRA	4.10.03	22.10.04	12.10.05	2.10.06	21.10.07	9.10.08	28.9.09
BHAIYA DOOJ	27.10.03	14.11.04	03.11.05	24.10.06	11.11.07	30.10.08	19.10.09
DEEPAWALI	24.10.03	12.11.04	1.11.05	21.10.06	9.11.07	28.10.08	17.10.09
ID-UL FITR/RAMZAN	26.11.03	15.11.04	4.11.05	25.10.06	14.10.07	2.10.08	21.9.09

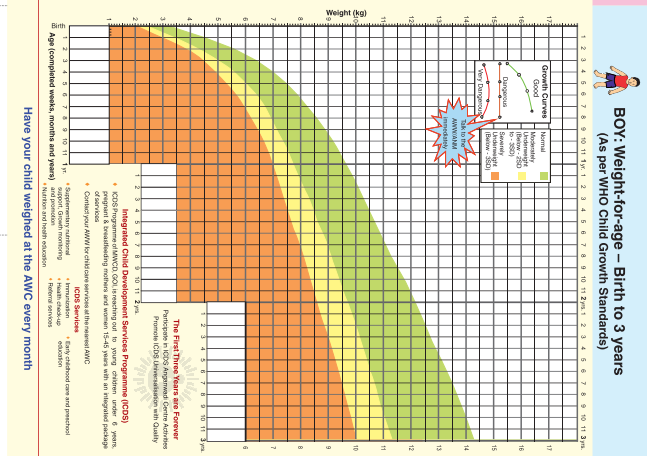
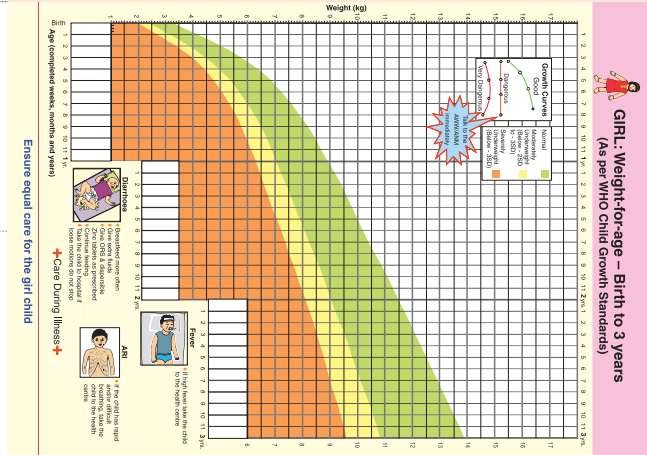
Continue breastfeeding during illness	Always use adequately iodized salt for the family	Child needs extra food after illness
<p>6 to 12 months</p> <p>Feeding</p>  <ul style="list-style-type: none"> On completion of 6 months, start with small amounts of soft mashed cereal, dal, vegetables and fruits Increase the quantity, frequency and thickness of the food gradually Understand child's signals for hunger and respond accordingly Feed the child 4-5 times a day and continue breastfeeding 	<p>What you can do</p> <p>Give your child clean safe items to handle and things to make sounds with</p>  <p>Play games like peek-a-boo, Tell the child names of things & people.</p>	<p>What children can do</p> <p>Around 9 months most children can</p> <ul style="list-style-type: none"> Sit up from lying position Pick up with thumb and finger Sit without support <p>Around 1 year most children can</p> <ul style="list-style-type: none"> Stand well without support Wave Say papa/mama

If the child seems slow, increase feeding, talking and playing. If the child is still slow, take the child to a doctor

Continue breastfeeding during illness	Always use adequately iodized salt for the family	Child needs extra food after illness
<p>1 to 2 years</p> <p>Feeding</p>  <ul style="list-style-type: none"> Continue to offer a wide variety of foods including family foods, such as rice/ chapatti, dark green leafy vegetables, orange & yellow fruits, pulses and milk products Feed the child about 5 times a day Feed from a separate bowl and monitor how much the child eats Sit with the child and help her finish the serving Continue breastfeeding upto 2 years or beyond 	<p>What you can do</p> <p>Give your child things to stack up & to put into containers and take out.</p>  <p>Ask your child simple questions. Respond to your child's attempts to talk.</p>	<p>What children can do</p> <p>Around 1½ years most children can</p> <ul style="list-style-type: none"> Express wants Put 3 pebbles in a cup Walk well <p>Around 2 years most children can</p> <ul style="list-style-type: none"> Stand on one foot with help Say one other word Imitate household work

Continue breastfeeding during illness	Always use adequately iodized salt for the family	Child needs extra food after illness
<p>2 to 3 years</p> <p>Feeding</p>  <ul style="list-style-type: none"> Continue to feed family foods 5 times a day Help the child feed herself/ himself Supervise feeding Ensure hand washing with soap before feeding 	<p>What you can do</p> <p>Help your child count and compare things, make simple toys for your child.</p>  <p>Encourage your child to talk & respond to your child's questions. Teach your child stories, songs, and games.</p>	<p>What children can do</p> <p>Around 2½ years most children can</p> <ul style="list-style-type: none"> Point to 4 body parts Food self spilling little Name one colour correctly <p>Around 3 years most children can</p> <ul style="list-style-type: none"> Copy & draw straight line Wash hands by herself Name 3 out of 4 objects

If the child seems slow, increase feeding, talking and playing. If the child is still slow, take the child to a doctor



ANNEXURE-III

SUGGESTIVE RECIPES REPRESENTING ENERGY DENSE AND HOT COOKED MEALS FOR ICDS PROGRAMME

(Source: National Institute of Nutrition, Hyderabad)

1. **RECIPES OF ENERGY DENSE / INSTANT FOODS:** These food items can be given as the first feed in the Anganwadi Centres (AWCs) as well as Take Home Ration (THR) for both children in the age-group of 6 months to 3 years and severely undernourished children in the age group of 6 months to 6 years.

1.1 CEREAL-PULSE MIX (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost ¹ (Rs)
Wheat, roasted	20	68	2.4	0.34	0.30
Bengal gram, roasted	10	37	2.3	0.54	0.41
Groundnuts, roasted	7	38	1.7	2.68	0.34
Jaggery/Sugar	17	64	0.1	0.02	0.50
Total	54	207	6.5	3.6	1.55*
Recommended Level		200	5-7		

* Excluding processing cost

Method of Preparation

- Powder all the roasted ingredients individually
- Mix all the three thoroughly
- Crush or powder the jaggery/sugar, add to the above mixture and mix thoroughly
- Store in air tight containers
- Mix with hot water before serving the child
- It can be made into laddus or in the form of porridge

1.2 RAGINA (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Ragi, dehusked & roasted	30	99	2.2	0.40	0.76
Bengal gram, roasted	7	25	1.5	0.33	0.27
Sugar	20	80	0.02	0.00	0.30
Total	57	204	3.7	0.7	1.33*
Recommended Level		200	5-7		

* Excluding processing cost

¹Cost of recipe is at current market prices as per National average (CPI_RL:- May, 2008)

Method of Preparation

- Powder all the roasted ingredients and the sugar individually
- Mix all the ingredients thoroughly
- Store in air tight containers
- Mix with hot water before serving the child
- It can be made into laddus or in the form of porridge

1.3 RICE FLAKES-GROUNDNUT BARFI (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice flakes	17	58	1.1	0.20	0.50
Groundnuts, roasted	13	76	3.5	5.40	0.70
Jaggery	20	77	0.1	0.02	0.60
Total	50	211	4.7	5.6	1.80*
Recommended Level		200	5-7		

* Excluding processing cost

Method of Preparation

- Roast the rice flakes and mix with the roasted and crushed groundnuts
- Prepare a syrup with jaggery and water
- Add the mixture of rice flakes and crushed groundnuts mix quickly
- Spread the mixture on a greased plate and cut into pieces immediately

1.4 WHEAT-GROUNDNUT BARFI (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat, roasted	17	57	2.0	0.27	0.25
Groundnuts, roasted	17	96	4.4	6.70	0.84
Salt	0.5	0	0.0	0.00	0.01
Sugar	13	54	0.01	0.00	0.20
Baking Powder	0.5	0	0.0	0.00	0.05
Total	48	207	6.4	7.0	1.35*
Recommended Level		200	5-7		

* Excluding processing cost

Method of Preparation

- Powder all the roasted ingredients and the sugar individually
- Mix all the ingredients together
- Add the baking powder and salt and mix thoroughly

- Make a stiff dough with hot water, roll into chapatis and cut into desired shape
- Place the cut pieces on greased metal trays and bake them well on heated sand in a degchi
- The degchi should be kept covered with a lid and pieces of live charcoal kept on the lid to ensure uniform baking
- Remove the biscuits when they are golden brown

1.5 BAJRA AND PULSE/ LEGUME MIX (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Bajra, dehusked & roasted	20	72	2.4	1.01	0.50
Green gram, roasted	7	24	1.7	0.08	0.27
Groundnut, roasted	7	38	1.7	2.70	0.33
Gingelly seeds, roasted	3	19	0.6	1.47	0.19
Sugar	13	54	0.01	0.00	0.20
Total	50	207	6.4	5.3	1.49*
Recommended Level		200	5-7		

* Excluding processing cost

Method of Preparation

- Powder all the roasted ingredients and sugar individually
- Mix all the ingredients thoroughly
- Store in air tight containers
- Mix with hot water before serving the child
- It can either be made into laddus or in the form of porridge

1.6 SWEET READY MIX (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat, roasted	17	57	2.0	0.27	0.25
Soyabean, dehusked & roasted	11	49	4.9	2.21	0.47
Oil	5	45	0.0	5.00	0.33
Sugar	11	46	0.01	0.00	0.17
Total	44	197	6.9	7.5	1.22*
Recommended Level		200	5-7		

*Including processing cost

Method of Preparation

- Powder all the roasted ingredients and sugar individually
- Mix all the above ingredients along with oil in a blender
- The food can be served as such or can be made into laddus or porridge by mixing the required quantity of hot water

1.7 PAUSHTIK PANJEERI (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Semolina	24	82	2.4	0.19	0.47
Bengal gram flour	13	50	2.8	0.75	0.55
Groundnuts, roasted	3	19	0.9	1.34	0.17
Oil	3	27	0.00	3.00	0.20
Sugar	7	27	0.01	0.00	0.10
Total	50	205	6.1	5.3	1.49*
Recommended Level		200	5-7		

*Including processing cost

Method of Preparation

- Roast semolina, Bengal gram flour and ground nuts separately in oil
- Add the powdered sugar. Grind all the ingredients into fine powder and store
- The food can be served as such or can be made into laddus or porridge by mixing the required quantity of hot water

1.8 BESAN-SUJI LADUS (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat Flour	13	46	1.6	0.22	0.20
Semolina	13	50	2.8	0.75	0.27
Bengal gram flour	7	24	0.7	0.05	0.22
Oil	7	63	0.0	7.00	0.46
Sugar/Jaggery	10	38	0.01	0.01	0.30
Total	50	221	5.1	8.0	1.45*
Recommended Level		200	5-7		

*Including processing cost

Method of Preparation

- Roast the semolina, wheat flour and Bengal gram flour separately in oil till light brown
- Make a thick syrup of jaggery/sugar
- Add the roasted ingredients and cook for another minute
- Remove from stove. Shape into round ball, while still hot

1.9 PAUSHTIK BARFI (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat Flour	13	46	1.6	0.23	0.20
Bengal gram flour	7	25	1.4	0.38	0.27
Groundnuts, roasted	7	39	1.7	2.70	0.34
Oil	3	27	0.00	3.00	0.20
Sugar/Jaggery	20	76	0.03	0.03	0.60
Total	50	213	4.7	6.3	1.61*
Recommended Level		200	5-7		

*Including processing cost

Method of Preparation

- Roast the groundnuts, remove skin and grind
- Heat oil, add wheat flour and Bengal gram flour, fry till golden brown
- Mix well and remove from fire
- Spread on greased plate and cut into equal pieces

1.10 PAUSHTIK MATHRI (6 Months – 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat Flour	17	57	2.0	0.29	0.42
Bengal gram flour	17	62	3.5	0.94	0.68
Oil	10	90	0.0	10.00	0.66
Salt	1	0	0.0	0.00	0.01
Total	45	209	5.5	11.2	1.77*
Recommended Level		200	5-7		

*Including processing cost

Method of Preparation

- Mix wheat flour, bengal gram flour, salt and oil well. Knead into dough and keep aside for 5 minutes. Make small round balls
- Heat oil in a deep frying pan, flatten each ball into round shape
- Dust the mathris in wheat flour and fry in medium flame till golden brown

1.11 AMYLASE RICH ENERGY FOOD (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Processed wheat Flour	20	68	2.4	0.33	0.30
Malted Ragi	3	9	0.2	0.03	0.07
Processed Soya Flour	13	58	5.8	2.61	0.54
Powdered Sugar/Jaggery	15	59	0.01	0.00	0.22
Vitamin & Mineral premix	-	-	-	-	0.05
Total	51	194	8.4	3.0	1.18*
Recommended Level		200	5-7		

Method of Preparation

- Boil water, remove from heat and add the powder stir continuously while mixing
- Serve the beneficiaries as Laddu, Kheer or Hulva

1.12 WEANING FOOD/ WHEAT SOYA LADDU (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat	24	80	2.8	0.40	0.35
Rice	7	24	0.5	0.03	0.07
Soybean	12	52	5.2	2.34	0.49
Sugar	11	43	0.01	0.00	0.16
Vitamin & mineral premix	-	-	-	-	0.05
Total	54	199	8.5	2.8	1.12*
Recommended Level		200	5-7		

Method of Preparation

- Boil water, remove from heat and add the powder stir continuously while mixing
- Serve the beneficiaries as Laddu

1.13 NUTRO SOYA CORN CHIKKIS (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Corn Flakes	27	92	2.9	0.96	0.80
Soybean	7	29	2.9	1.31	0.27
Roasted Bengal Gram	2	7	0.5	0.11	0.08
Sugar	17	67	0.02	0.00	0.25
Oil	1	9	0.0	1.00	0.07
Vitamin & mineral premix	-	-	-	-	0.05
Total	54	204	6.3	3.4	1.52*
Recommended Level		200	5-7		

Method of Preparation

- Ready to serve chikkis

1.14 SUMMARY (Average Nutritive Value and Cost Per Recipe)

S.No.	Recipe	Children (6 months – 3 years)			
		Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
1.	Cereal-Pulse Mix	207	6.5	3.6	1.55
2.	Ragina	204	3.7	0.7	1.33
3.	Riceflakes-Groundnut Barfi	211	4.7	5.6	1.80
4.	Wheat-Groundnut Barfi	207	6.4	7.0	1.35
5.	Bajra and Pulse/Legume Mix	207	6.4	5.3	1.49
6.	Sweet Ready Mix	197	6.9	7.5	1.22
7.	Paushtik Panjeeri	205	6.1	5.3	1.49
8.	Besan Suji Laddu	221	5.1	8.0	1.45
9.	Paushtik Barfi	213	4.7	6.3	1.61
10.	Paushtik Mathri	209	5.5	11.2	1.77
11.	Amylase Rich Energy Food	194	8.4	3.0	1.18
12.	Weaning Food/ Wheat Soya Laddu	199	8.5	2.8	1.12
13.	Nutro Soya Corn Chikkis	204	6.3	3.4	1.52
TOTAL		2678	79.2	69.7	18.88
Average		206	7.2	6.3	1.45
Recommended Level		200	5-7		

2. **RECIPES FOR SOME COMMON HOT COOKED FOOD:** These food items can be given as the second feed in the Anganwadi Centres (AWCs) for both normal children and severely undernourished children in the age group of 3 to 6 years.

2.1 MITHA DALIYA (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Broken Wheat	36.8	125	4.5	0.63	0.55
Green Gram Dhal	14.4	50	3.5	0.17	0.59
Soybean	5.8	25	2.5	1.13	0.24
Sugar	20	80	0.2	0.00	0.30
Oil	3	27	0.0	3.00	0.20
Fuel	130	0	0	0	0.27
Total		306	10.5	4.93	2.15
Recommended Level		300	8-10		

Method of Preparation

- Roast broken wheat and soybean in a pan
- When half done, add green gram dal and continue roasting till light brown
- Add water and cook till soft and semi solid consistency is obtained
- Add milk, sugar and oil
- Boil for a few minutes and serve hot

2.2 NAMKEEN DALIYA (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Broken Wheat	54.4	185	6.6	0.92	0.82
Green Gram Dhal	11.6	40	2.8	0.14	0.47
Soybean	6.8	29	2.9	1.33	0.28
Oil	5.6	50	0.0	5.60	0.37
Salt	1.0	0	0	0	0.01
Fuel	130	0	0	0	0.27
Total		306	12.1	8.0	2.22
Recommended Level		300	8-10		

Method of Preparation

- Heat oil and fry broken wheat, green gram dhal and soybean till golden brown
- Add water and cook till soft and semi solid
- Add salt and serve hot.

2.3 KHICHDI (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice	65	224	4.4	0.30	0.65
Green gram dhal	10	35	2.5	0.12	0.41
Cooking oil	5	45	0.0	5.00	0.33
Green chilies	5	1	0.1	0.03	0.36
Ginger	2	1	0.05	0.02	
Turmeric	0.5	2	0.03	0.03	
Salt	1	0	0.0	0.00	
Fuel	130	0	0.0	0.00	0.27
Total		309	7.1	5.5	2.02
Recommended Level		300	8-10		

Method of Preparation

- Heat oil in a pan
- Season with green chilies, turmeric and ginger paste/pieces
- Add the washed rice and green gram dhal
- Add the salt and required amount of water (For 1 cup rice add 2.5 cups of water)
- Cook till soft and done and serve hot

2.4 VEGETABLE UPMA (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Broken wheat	55	191	5.7	0.44	1.10
Bengal gram dhal	5	19	1.0	0.28	0.20
Carrots	15	7	0.1	0.03	0.36
Beans	15	4	0.3	0.02	
Cooking oil	5	45	0.0	5.00	0.33
Ginger	2	1	0.05	0.02	0.38
Cumin	1	4	0.2	0.20	
Green chillies	5	1	0.1	0.03	
Salt	1	0	0.0	0.00	
Ground nuts	5	28	1.3	2.01	0.25
Fuel	130	0	0.0	0.00	0.27
Total		300	8.8	8.0	2.89
Recommended Level		300	8-10		

Method of Preparation

Boil the vegetables and keep aside

Heat oil and season with green chillies, cumin, bengal gram, ginger & groundnuts

Add the broken wheat and fry for 2 minutes. Add the boiled vegetables and salt

Add water (for 1 cup broken wheat add 2 cups of water) and cook till soft and done. Serve hot.

2.5 KESARIYA UPMA/HULVA (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Semolina (<i>Suji</i>)	42.8	149	4.5	0.34	0.86
Soybean	12.8	55	5.5	2.50	0.52
Sugar	19.6	78	0.02	0.0	0.29
Oil	4.8	43	0.0	4.8	0.31
Flavours & colours	a pinch	0	0	0	0.01
Fuel	130	0	0	0	0.27
Total		325	10.0	7.6	2.26
Recommended Level		300	8-10		

Method of Preparation

- Boil water and sugar for a few seconds and keep aside.
- Fry semolina and soybean in oil till golden brown.
- Add the hot syrup and cook till *halwa* does not stick to the sides of the pan.
- Serve hot

2.6 SWEET PONGAL (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice	50	173	3.4	0.25	0.50
Green gram dhal	10	35	2.5	0.12	0.41
Oil	5	45	0.0	5.00	0.33
Jaggery	15	58	0.1	0.02	0.45
Fuel	130	0	0.0	0.00	0.27
Total		311	6.0	5.4	1.96
Recommended Level		300	8-10		

Method of Preparation

- Boil the rice and green gram dhal with required amount of water (for 1 cup rice add 2.5 to 3 cups of water)
- When rice turns soft and water is absorbed, add powdered jaggery
- Add oil and boil till the jaggery leaves the sides of the vessel
- Serve hot or cold

2.7 BROKEN WHEAT PORRIDGE (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Broken wheat	50	174	5.2	0.40	1.00
Green gram dhal	10	35	2.5	0.12	0.41
Oil	5	45	0.0	5.00	0.33
Jaggery	15	58	0.1	0.02	0.45
Fuel	130	0	0.0	0.00	0.27
Total		312	7.8	5.5	2.46
Recommended Level		300	8-10		

Method of Preparation

- Boil the broken wheat and green gram dhal with required amount of water (for 1 cup broken wheat add 3 cups of water)
- When the mixture turns soft and water is absorbed, add powdered jaggery
- Add oil and boil till the jaggery leaves the sides of the vessel
- Serve hot or cold

2.8 TAMARIND RICE (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice	50	173	3.4	0.25	0.50
Bengal gram dhal	5	19	1.0	0.28	0.20
Curry Leaves	2	2	0.1	0.02	0.02

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Cooking oil	5	45	0.0	5.00	0.33
Tamarind Pulp	8	23	0.2	0.01	0.52
Dry red chillies	2	5	0.3	0.12	
Cumin	1	4	0.2	0.20	
Turmeric	0.5	2	0.03	0.03	
Salt	1	0	0.0	0.00	
Groundnuts	5	28	1.3	2.01	0.25
Fuel	130	0	0.0	0.00	0.27
Total		301	6.6	7.9	2.09
Recommended Level		300	8-10		

Method of Preparation

- Cook the rice till soft and done with required amount of water (for 1 cup rice add 2 cups of water) and keep aside to cool
- Heat oil in a pan and season with dry red chillies, bengal gram, curry leaves and turmeric powder. Add groundnuts and fry till it loses its raw flavour
- Add the thick tamarind pulp and the required quantity of salt and bring to a boil till thick consistency is achieved
- Cool it to room temperature
- Pour this mixture over the cooked and cooled rice, mix well and serve

2.9 RICE KHEER (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice	25	86	1.7	0.12	0.25
Sugar	10	40	0.01	0.00	0.15
Milk	100	210	4.3	6.48	2.50
Fuel	130	0	0.0	0.00	0.27
Total		336	6.01	6.6	3.17
Recommended Level		300	8-10		

Method of Preparation

- Clean and wash the rice
- Boil milk, add rice and cook till semi solid
- Add sugar
- Serve hot or cold

2.10 RAJMAH CHAWAL (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice	50	173	3.4	0.21	0.50
Rajmah	25	87	5.7	0.30	0.90
Tomatoes	20	4	0.2	0.04	0.84
Onions	15	7.5	0.2	0.02	0.84
Red Chilli Powder	3	7.4	0.5	0.20	
Turmeric	0.5	1.8	0.03	0.03	
Garam Masala	0.5	1.5	0.07	0.05	
Salt	1	0	0.0	0.00	
Oil	5	45	0.0	5.0	0.33
Fuel	130	0	0.0	0.00	0.27
Total		327	10.1	5.85	3.68
Recommended Level		300	8-10		

Method of Preparation

- Cook the rice and keep aside
- Soak the rajmah and boil it till soft
- Add sugar In a pan, fry the ground onions till brown
- Add tomatoes and fry till water evaporates
- Add all the spices and the boiled rajmah
- Cook for a few minutes, sprinkle *garam masala* and serve hot
- Serve the rajmah with hot rice

2.11 POHA (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (KCal)	Protein (gm)	Fat (gm)	Cost (Rs)
Rice Flakes	35	121	2.3	0.42	1.05
Potatoes	30	29	0.5	0.03	0.56
Carrots	15	7	0.1	0.03	
Curry leaves	2	2	0.1	0.02	
Groundnuts	10	57	2.6	3.98	0.50
Cumin	1	3.6	0.2	0.15	0.10
Turmeric	0.5	1.8	0.03	0.03	
Salt	1	0	0.0	0.00	
Oil	10	90	0.0	10	0.66
Fuel	130	0	0.0	0.00	0.27
Total		312	5.6	14.6	3.14
Recommended Level		300			8-10

Method of Preparation

Wash thoroughly and soak the rice flakes for 5 minutes, drain and keep aside

Roast groundnuts, remove skin and keep aside

Cut the potatoes and carrots and boil and keep aside

Heat oil, add cumin and curry leaves, add the boiled vegetables

Add the groundnuts, salt, turmeric and the rice flakes

Mix well, cook for 2 minutes and serve hot

2.12 POORI-CHOLE (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Poori					
Wheat flour	40	136	4.8	0.64	0.60
Oil	5	45	0.0	5.00	0.33
Chole					
Kabuli chana	20	72	3.4	1.07	0.82
Potatoes	10	10	0.2	0.01	0.24
Tomatoes	10	2	0.1	0.02	
Oil	5	45	0.0	5.00	0.33
Ginger	1	1	0.02	0.00	0.57
Garlic	1	2	0.06	0.00	
Garam Masala	1	3	0.2	0.10	
Turmeric	0.5	2	0.03	0.03	
Tamarind	5	14	0.2	0.00	
Red Chilli Powder	3	7	0.5	0.2	
Cumin	1	4	0.2	0.2	
Salt	1	0	0.0	0.00	
Fuel	130	0	0.0	0.00	0.27
Total		343	9.7	12.3	3.16
Recommended Level		300	8-10		

Method of Preparation

- Make dough, divide into small balls, roll into pooris and deep fry
- Soak chana overnight, boil, drain and keep aside
- In a pan, add oil, fry ground ginger and garlic till brown.
- Add all the spices except tamarind
- Add the boiled chana and boiled potatoes, cook for a few minutes.
- Add the tamarind pulp, garam masala and garnish with chopped tomatoes

2.13 THEPLA (6 Months - 6 Years Children)

Ingredients	Quantity (gm)	Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
Wheat flour	60	206	7.3	1.02	0.90
Fenugreek leaves	10	5	0.4	0.09	0.12
Green chillies	2	1	0.1	0.01	0.36
Red chillie powder	2	5	0.3	0.12	
Ginger	1	1	0.02	0.00	
Garlic	1	2	0.06	0.00	
Turmeric	0.5	2	0.03	0.03	
Cumin seeds	1	4	0.2	0.20	
Salt	1	0	0.0	0.00	
Oil	10	90	0.0	10.00	0.66
Fuel	130	0	0.0	0.00	0.27
Total		316	8.4	11.5	2.31
Recommended Level		300	8-10		

Method of Preparation

- Combine together all the ingredients with the wheat flour
- Knead into a dough by adding 5 gm of oil. Set aside for 15 minutes
- Prepare medium sized balls, roll into a round shape like a chapathi
- Roast them on a pan on both the sides properly by applying oil
- Remove when well roasted
- Serve hot

2.14 SUMMARY (Average Nutritive Value and Cost per Recipe)

S.No.	Recipe	Children (6 months – 3 years)			
		Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
1.	Mitha Daliya	306	10.5	4.93	2.15
2.	Namkeen Daliya	306	12.1	8.0	2.22
3.	Kichidi	309	7.1	5.5	2.02
4.	Vegetable Upma	300	8.8	8	2.89
5.	Kesariya Upma/Halwa	325	10.0	7.6	2.26
6.	Sweet Pongal	311	6.0	5.4	1.96
7.	Broken Wheat Porridge	312	7.8	5.5	2.46
8.	Tamarind Rice	301	6.6	7.9	2.09
9.	Rice Kheer	336	6.01	6.6	3.17

S.No.	Recipe	Children (6 months – 3 years)			
		Energy (K Cal)	Protein (gm)	Fat (gm)	Cost (Rs)
10.	Rajmah Chawal	327	10.1	5.85	3.68
11.	Poha	312	5.6	14.6	3.14
12.	Poori-Chole	343	9.7	12.3	3.16
13.	Thepla	316	8.4	11.5	2.31
	TOTAL	3167	76.1	83.2	26.88
	Average	317	7.6	8.3	2.69
Recommended Level		300	8-10		

PRICES OF COMMODITIES

Food Commodity	Average Cost (Rs./kg of food commodity)
CPI-RL (Labour Bureau: GoI- May 2008)	
Pulses	40.84
Edible Oils & Fats	65.43
Vegetables	11.92
Condiments & Spices + Salt	42.00
Fuel	02.05
Local Prices (Hyderabad: Dec. 2008)	
Rice	10.00
Wheat	15.00
Broken Wheat or Dalia	20.00
Sugar	15.00
Jaggery	30.00
Groundnuts	50.00
Rice Flakes	30.00
Ragi or Bajra	25.00

OPTIONAL MENUS CONSISTING OF EGG, MILK AND BANANA

Menu: 1

Name of Food Stuff	Average Weight (gm)	Cost (Rs.) [Per Child /Day]	Nutritive Value	
			ENERGY (Kcal)	PROTEIN (gm)
Egg [1 No.]	50	2.50	87	6.7
Milk [150 ml] [Buffalo]		3.75	176	6.5
Total:		6.25	263	13.2

Menu: 2

Name of Food Stuff	Average Weight (gm)	Cost (Rs.) [Per Child /Day]	Nutritive Value	
			ENERGY (Kcal)	PROTEIN (gm)
Banana (Ripe) [1 No.]	100	1.70	116	1.2
Milk [150 ml] [Buffalo]		3.75	176	6.5
Total		5.25	292	7.7

ANNEXURE IV

Skill Training for Instructors of MLTCs/AWTCs
on New WHO Growth Standards in ICDS

Day, Date & Session Time	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
Day 1 9.00 -9.30 a.m.	Registration		Registration of participants and distribution of Kit		
9.30 am – 10.30 am	Welcome & Introduction	<ul style="list-style-type: none"> To create an environment to facilitate the interaction among participants To apprise participants about the objectives and methodology of the course 	<ul style="list-style-type: none"> Welcome of the participants Introductory Address by Head of the Institution/Division Introduction to the Training Programme Briefing on objectives, programme schedule, working hours Introduction to the Training Institute Self-introduction by participants and sharing of information about the family, home and place of work <p>Instructions for Course Director</p> <ul style="list-style-type: none"> Course Director may assign responsibilities to participants by rotation for classroom management Every day one trainee should be given the responsibility of preparing the report of the day which should be read in the class and put on the board the next day Participants may be divided into groups of 4/5 for group exercises during the programme 	<ul style="list-style-type: none"> Self Introduction by participants Information dissemination 	<ul style="list-style-type: none"> Charts and colour pens for conducting Defreezing games

Day, Date & Time	Session	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
10.30 am – 11.30 am	I	Nutritional Status of Women & Children	<ul style="list-style-type: none"> To discuss the situation of women and children in the country/area Highlight the causes of dismal situation of children and women To create awareness about the problem of malnutrition Update information on recent statistics 	<ul style="list-style-type: none"> Discussion on situation of children, adolescent girls and on following indicators <ul style="list-style-type: none"> Demography/Vital Statistics <ul style="list-style-type: none"> Total population Population of children (0-6yrs) by sex, adolescent girls and women in country/states Population growth rate Sex ratio System of registration of birth and death Death and birth rate by sex and age group Health Status <ul style="list-style-type: none"> Mortality among children (0-6 yrs) by age group and by sex Crude Death Rate Low birth weight babies Morbidity – definition, incidence/prevalence of common childhood diseases Maternal mortality rate of women Immunisation status of children and expectant mothers Nutritional Status <ul style="list-style-type: none"> Malnutrition among children and women Number of undernourished, wasted and stunted children by age and sex Number of children suffering from micro-nutrient deficiencies i.e. blindness due to vitamin-A deficiency, nutritional anaemia, and iodine deficiency disorders 	<ul style="list-style-type: none"> Lecture cum discussion Pictorial representation highlighting the statistics and malnutrition cycle 	<ul style="list-style-type: none"> Charts and posters Reference booklets on statistics and population tables Film on malnutrition

Day, Date & Time	Session	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
11.30 am – 1.00 pm	II	Current use of Child Growth Standards in India	<ul style="list-style-type: none"> To understand the need, importance and process of growth monitoring To discuss the existing growth monitoring tools for child growth standards 	<ul style="list-style-type: none"> Need and importance of monitoring growth of a child from birth onwards Frequency of monitoring growth of children 0-3 yrs and 3-6 yrs Criteria and identification of 'At risk' children Tools & Techniques for growth monitoring <p>Growth charts, weighing scales, weighing baskets etc</p> <ul style="list-style-type: none"> Discuss five steps of growth monitoring (Trainers to explain through demonstration) <p>☞ Assessing the age of the child ☞ Weighing ☞ Plotting ☞ Interpretation ☞ Counselling</p>	<ul style="list-style-type: none"> Lecture cum discussion Demonstration of tools 	<ul style="list-style-type: none"> Growth charts, weighing machine
2.00 pm – 3.30 pm	III	Introduction of New WHO Child Growth Standard : Evolution & Concept	<ul style="list-style-type: none"> To apprise participants to new WHO child growth standards 	<ul style="list-style-type: none"> Introduction of new WHO Child growth standards –Concept and evolution Need for adoption of new standards Difference between existing and new growth standards Type of growth charts for assessing the growth of the child 	<ul style="list-style-type: none"> Lecture-cum discussion Demonstration of new tools 	<ul style="list-style-type: none"> Tools for monitoring the growth of child i.e. New growth charts - boys and girls and weighing machines
3.30 p.m. – 4.30 pm	IV	Adoption of New WHO Child Growth Standards in India, its implications, plotting and interpretation	<ul style="list-style-type: none"> Discuss the need for adoption of new standards 	<ul style="list-style-type: none"> Implication of new WHO child growth standards 	<ul style="list-style-type: none"> Lecture-cum discussion Demonstration of new tools 	<ul style="list-style-type: none"> Tools for monitoring the growth of child i.e. New growth charts - boys and girls and weighing machines

Day, Date & Time	Session	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
4.30 p.m. – 5.30 p.m	V	Mother and Child Protection Card – A Counselling Package	<ul style="list-style-type: none"> To discuss the contents and use of MCPC for gaining knowledge related to children's health, nutrition and development To learn, understand and follow the positive practices for achieving good health To know about various services available in the area To enhance the capabilities of participants to make decisions for good health 	<ul style="list-style-type: none"> Need for developing the Mother and Child Protection Card (MCPC) and its importance Using MCPC and as discussion tool <ul style="list-style-type: none"> ➔ for using all available services ➔ for practicing optimal care behaviour ➔ for monitoring and promoting growth and development of children Method for filling MCP Card 	<ul style="list-style-type: none"> Discussion on various sections of the card Demonstration of MCP Card followed by practice exercise 	<ul style="list-style-type: none"> Mother and child protection card and guide book

Day, Date & Time	Session	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
Day 2 9.00 am – 12.00 noon	I	Weighing, plotting and interpretation	<ul style="list-style-type: none"> Recapitulate the need, importance and process of growth monitoring. Assess the age of the child correctly using local events calendar Weigh the child accurately Plot the weight of the child on the growth chart Analyze and interpret the growth charts Counsel the mother/child care giver Identify 'At Risk' children. 	<ul style="list-style-type: none"> Discuss five steps of growth monitoring (Trainers to explain through demonstration) Recording correct date of birth and ways to interpret correct age of the child Weighing of children Plotting the weight on growth chart Interpreting the growth curve and trends of growth of the child Nutrition counselling using growth chart Responsive and active feeding, How can a child be encouraged to eat? Class Assignment: Each trainee to practice exercises on assessment of correct age, weighing objects in place of child, plotting of the weight on growth chart, interpreting growth curve. Trainers to supervise and discuss interpretation of growth 	<ul style="list-style-type: none"> Demonstration and practice exercise Role play by trainees on Counselling a Mother of a Child not Gaining Weight/ not giving complementary foods at six months 	<ul style="list-style-type: none"> Tools & Techniques for growth monitoring Growth charts, weighing scales, weighing baskets etc

Day, Date & Time	Session	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
12.00 noon – 1.00 pm	II	Infant & Young Child Feeding & Counselling	<ul style="list-style-type: none"> Understand optimal infant and young child feeding Know dangers of artificial feeding and importance of exclusive breastfeeding Discuss current recommendations on infant and young child feeding Describe correct positioning of the baby at the breast Acquire skills to help the mother in successful breastfeeding 	<ul style="list-style-type: none"> Optimal infant and young child feeding - definition and importance National guidelines on IYCF ➔ Breastfeeding – early initiation, colostrum feeding, exclusive breastfeeding upto six months and Prolactin reflex, Oxytocin reflex ➔ Dangers of artificial feeding before 6 months of age ➔ Breast milk production and flow ➔ Positioning of the baby at the breast ➔ Helping mother for correct attachment ➔ Breast conditions ➔ Complementary feeding – Need and type of foods ➔ Guidelines on complementary feeding Age-specific nutritional requirements of children 2-6 years • Home Assignment – Trainees would be required to write two nutritious recipes of complementary foods for children - one for children under 2 years of age and another for children 2-6 years of age and submit the next day 	<ul style="list-style-type: none"> Lecture cum discussion 	<ul style="list-style-type: none"> Film on breast feeding • Flip chart/poster on breastfeeding and complementary feeding

Day, Date & Time	Session	Topic	Learning Objectives	Training Content	Methodology	Training Aids/ Materials
2.00 pm-3.00 pm	III	Film on Growth Monitoring in ICDS	<ul style="list-style-type: none"> To emphasize steps of growth monitoring by viewing a film 	<ul style="list-style-type: none"> Film depicting five steps on growth monitoring 	<ul style="list-style-type: none"> Screening of film and discussion 	<ul style="list-style-type: none"> Film on growth monitoring
3.00 pm – 5.00 pm	IV	Exercise Instructions for field visit		<ul style="list-style-type: none"> Trainers to give instructions to trainees to visit AWC for conducting growth monitoring of children Trainers to provide a schedule of activities to trainees 	Group discussion	Exercises
Day 3 9.00 am – 1.00 pm	I	Practical session on weighing, plotting and interpretation in the field (in groups)	<ul style="list-style-type: none"> To provide hands on experience to participants on weighing, plotting, interpreting the growth of the child Enhance the skills of participants in counselling mothers 	<ul style="list-style-type: none"> Instructions for Course Director Trainees to be divided into small groups and practice growth monitoring on children 	<ul style="list-style-type: none"> Supervised Practice 	<ul style="list-style-type: none"> Growth charts and weighing machines
1.30 pm – 3.00 pm	II	Feedback of field visit	<ul style="list-style-type: none"> To discuss the experiences of the participants 	<ul style="list-style-type: none"> Presentation of cases by participants 	<ul style="list-style-type: none"> Experience sharing on visit to AWC and presentation of group reports 	<ul style="list-style-type: none"> Question-Answer Session
3.00 pm – 4.00 pm		Concluding Session				

ANSWERS OF EXERCISES

ANNEXURE V

ANSWERS OF EXERCISES

Exercise 1

1. Increase, 2. Healthy, 3 (i) Optimum health, (ii) Optimum nutrition and (iii) Optimum environment, 4 (i) Determining correct age of child, (ii) Accurate weighing of child, (iii) Plotting the weight on growth chart, (iv) Interpreting the direction of the growth curve, (v) Discussing the child's growth and follow up action with the mother.

Exercise 2

1. (a) Accurate growth monitoring, 1. (b) (i) MCP card; (ii) birth certificate; (iii) questioning the mother; and (iv) trained birth attendant(TBA). 3. 21 October 2008. 4. 22 October 2005. 6. 11 months.

Exercise 4

- (i) Index; Serial No., child's name, date of birth, Birth registration no., father's and mother's name, family survey registration no., page no. of Growth Chart
- (ii) Information box (iii) Date of birth (iv) birth; first (v) month (white boxes); (vi) correctly; (vii) weight (a) intersect of month and weight (b) encircle c) HB pencil (viii) line; growth.

Exercise 5

- (B) (1) February 2006, (2) Local events calendar, C Pink, D. 2/06 E. fill as asked F(1)Two years and 10 months (2) Three years and 8 months.

Exercise 6

- (B) (i) 5 days ; (ii) 7 days/one week; (iii) 9 days/one week (iv) 16 days/two weeks (v) 23 days/three weeks
- (C) As child gains weight rapidly in first two months i.e. around 800 grams per month . Jancy birth weight is 2.5 kg and she gained around 600 grams in 3 weeks. Her growth curve goes upward. This is good .It is essential to weigh child weekly in the first month.

Exercise 7

- (B) With the help of birth certificate/ by questioning the mother regarding any festivals; events, season etc. just before or after Aashish's birth.
- (C) (1) March 2005; From local events calendar – Holi was celebrated on 25 March 2005 and 15 days before this would be 10 March 2005, (2) Blue, (4) one year and one month (5) Monitoring of his growth would not have been done accurately.

Exercise 8

- A (2) August 2007; C (3) Upward; (4) 600 g; this is not sufficient as a breastfed infant gains 800 grams weight each month during first two months D (2) Moderately Underweight 3)

upward 4) Although the direction of the growth curve is upward the weight gain between October and November 2007 is only 300 grams. This is not sufficient. Therefore, the growth curve is not an adequate upward curve.

Exercise 9

C (3) Growth curve (4) flat, indicating no growth (5) this is dangerous, because Jeevan Lal has not gained weight (6) Normal (7) Although Jeevan Lal is in normal grade, his growth curve indicates that he has not grown. This is not good. D (3) Downward (4) This is dangerous, because Jeevan Lal has lost weight.

Exercise 10

C (1) No, birth weight less than 2.5 kg is not adequate called as low birth weight 2) Neeta is low birth weight baby and is therefore 'at risk' of morbidity and mortality. Show the growth chart to the mother and discuss the following points. (It is important to first take mothers opinion on the various points and then give advice):

Visit her as early as possible and give advice about colostrum to give her protection against diseases. Educate her on the need to give colostrum.

Breast feed every 2-3 hours. An underweight baby needs encouragement to suck well. The more the baby is breast-fed, the more milk will be produced.

Rema should eat more food and drink 6-8 glasses of water also everyday to produce good amount of breast milk.

Rema should come to the AWC for supplementary food or give her THR; Explain to her the need to eat this food for babies health and her own health.

Educate her about exclusive breastfeeding.

Give Neeta BCG immunisation

She should bring Neeta for weighing each week. Explain to her the need to weigh LBWB and Preterm babies every week in order to know the extent of growth of the child during first two months. However, a normal birth weight child should be weighed every month.

Keep the baby clean.

D (2) No, this gain is inadequate, because Neeta has gained 400 gm (A one month old baby should gain about 800 gm every month for two months) (3) Show growth chart to Rema and tell her that her child has gained weight but it is not adequate. Find out from her the reasons for inadequate weight gain—whether child was sick, frequency and duration of feed, what all and how much food she is eating etc. Reinforce the messages which may have caused inadequate weight gain; E1) Upward 2) This is good. Neeta has gained 400-500 gm weight every month. It would be even better if she gained 600 gm every month.

3) Although she is moderately underweight, Neeta has been gaining about 400 gm every month during December 2005 – March 2006; this is good. Mother should be encouraged to intensify the good work and devote more time for breastfeeding and ensure immunisation.

F. He would have been in the category of severely underweight children.

Exercise 11

B 1) Upward, 2) It is very good, because it shows that Dharam Pal is gaining weight and is growing 3) Show her the growth chart and tell her that her child is growing very well: ask her to continue breast-feeding the child, eating and drinking well herself, advice her about immunisations i.e BCG, DPT, polio and measles.

C.1) Show her the growth chart and tell her that her child is growing well; ask if Dharam Pal received immunisations. If not, ask the reasons for not getting immunised. Inform dates and place of immunisation so that they can be given at any early date; ask Rajwati about continuing breastfeeding for six months and eating well herself.

D.1) Show the mother the growth chart and tell her that Dharam Pal has not grown; ask her if she has reduced breastfeeding and has started giving water: If she has started, ask her to continue breast feeding and give complementary food. Explain complementary food; find out if Dharam Pal had any illness; if child was immunised find out how many doses of immunisations; ask Rajwati to bring child for weighing.

E.1) Flat 2) he is moderately underweight 3) although Dharam Pal is still in moderately underweight grade, he has not grown for two months and this is not good 4) show Rajwati Dharam Pal's growth chart and tell her that he has not grown for 2 months and this has concerned you: visit to her house and see yourself the quantity of food she gives to the child along with breast milk as complementary feeding is essential. He should eat 4-5 times in a day; ask Rajwati to give food before giving breast milk; she can add some oil in the food to increase caloric content; continue breast feeding; ask her to get Dharam Pal weighed next month; if you find that Rajwati is feeding good quantity of food 4-5 times a day and there has been no illness in the child, then you can ask mother to show him to a doctor to find out the reasons for no growth for 2 months.

Exercise 12

B. 1) Ritu is seven months old in May 2007. 2) Show the mother Ritu's growth chart and explain to her that she is moderately underweight and she must bring her for weighing next month to see how well she is growing; ask Rema to bring Ritu for supplementary feeding at the AWC. Explain to her the purpose of giving supplementary food to Ritu; ask Rema what all Ritu is eating. If Rema has not started any food, besides breast milk, explain to her the need to introduce soft food. Suggest to her the foods she can start, by modifying the foods available at home. Tell her to start with small quantity and increase the quantity gradually; if Rema has started supplementary foods, ask her the quantity of food she gives to Ritu; encourage Rema to continue breast feeding; ask Rema if Ritu has been immunised. If not, suggest the place and the day on which she can get Ritu immunised. If Ritu has been immunised,

find out from Rema how many immunisations has Ritu received. If the immunisations are incomplete, advise her to complete them or start them again, depending on the time gap.

C. 1) Show the growth chart of Ritu to her mother and explain to her the meaning of a flat curve; ask Rema the possible reasons for Ritu not gaining weight; ask her if she had any illness. If there was any illness, find out if the mother took prompt action (showed to the doctor, gave ORS in case of diarrhoea and continued feeding during illness); ask Rema what all food she is feeding Ritu; make a home visit to see the quantity of feed she is eating; Ritu should eat around $\frac{1}{2}$ katori of food at the one time; find out if she feeds 4-5 times, besides breast feeding; suggest the addition of 1 tsp oil in Ritu's food to increase the energy content; ask if Rema is giving the food given at AWC to Ritu.

D. 1) The direction of the growth curve is upward 2) Though she is growing moderately underweight this is slightly satisfactory considering that Ritu was not gaining weight earlier. Although, from June-July 2007, July-August 2007 the weight gain only 250 gm per month and from August-October'07 the weight gain is only 500 gm. 3) Show Rema the growth chart of Ritu and tell her that her child has started gaining weight which can be seen by her growth curve going in an upward direction. However, Rema should be told that the weight gain should be more than 250 gm each month to cover up earlier low weight gains. Tell her that she is not doing well and she has to work little more to ensure adequate weight gain; once again find out from Rema the foods she is giving. Since Ritu is one year old in October 2007 tell Rema that Ritu should now start to eat half as much as adults at home eat. However, if Ritu cannot eat the entire quantity at one meal she should be given 4-5 feeds in a day. Inquire from her the reason for not coming for weighing in September; ask her to come for weighing every month.

Exercise 13

A. 1) Pramod was born on August 2005; from the local events calendar –Independence Day was celebrated on 15 August 2005. Since Pramod was born on Independence Day, he was born in August 2005, 3) eight months old. 4) show Meera the growth chart of Pramod and tell her that her son is growing well; but he should gain little more weight each month; encourage her to continue breast feeding; find out from her the foods she is giving, besides breast milk, and the frequency and the quantity of food. Since Meera works the whole day, suggest to her the modifications she can make in the food she cooks for others in the house, to feed Pramod. Tell her that Pramod should eat $\frac{1}{2}$ katori food at each feeding and that she should feed 3-4 times a day, besides breast feeding; find out from September to October 2006, if Pramod has been immunised. If not, guide her the day and the place where she can get the immunisation. If he has been immunised, find out if he has been given all the doses.

B. 1) Pramod is severely underweight and that direction of the growth curve is downward, this means that Pramod has lost weight. This is not good. 2) Meet the mother when she is available and show the growth chart to her. Explain to her that her son has lost weight and this is a source of concern. Find out if Pramod had any illness and what the mother did about it. Find out the food she gives him; ask Meera to bring Pramod for therapeutic feeding at the

Anganwadi. Explain to her the need for giving this food to Pramod. B.2) (i) If the child is ill: a) Find out the illness – whether it was fever, diarrhea, cold, cough etc. b) explain to her to continue feeding well cooked food to Pramod and continue breast feeding during illness, c) if he had diarrhea, ask what she did. If she did not feed him oral rehydration solution, teach her to make this by demonstrating with the ingredients available in her house. d) ask her to be patient and persistent in feeding Pramod during illness, e) if the illness does not subside in one or two days, advise her to see the doctor. (ii) About feeding in general: a) continue breast feeding. b) increase the quantity of food Pramod eats. Feed him 5-6 times a day to help him regain the lost weight. One of these feeds would be the supplementary food at the AWC. Refer him to Health Centre and add 1 tsp. oil/ghee in Pramod's food, if mother can afford, check if the mother is using bottle for giving top milk or is using tinned milk. Discourage her if she is doing this because bottle milk can add infections and instead of tinned milk, she could give cow's milk or buffalo's milk (after removing the cream).

C. 1) Visit Meera when she is free and show her Pramod's growth chart. Since there has to be reason for the child losing weight, try to find out the reason by questioning the mother and by observing the home environment; ask mother to bring Pramod for therapeutic feeding, give him as prescribed under ICDS. Insist that he eats two snack and one hot cooked meal at the Anganwadi and takes the third THR at home; arrange for the mother to show the child to ANM/MO at the PHC/Sub-centre or Anganwadi. Impress on the mother to take the child to the doctor immediately; ask Meera to feed Pramod 5-6 times a day and increase the quantity of food at each meal; impress on the mother that it is she who has to take action to ensure that the child stops losing weight and starts growing again. Ask her to bring Pramod for weighing next month; Follow up this advice when you meet Meera during the month to ensure that she has taken some action.

Exercise 15

1 (i) Birth date is not written at the margin of first month box; Birth weight is plotted incorrect; and dotted lines are not used when child is not weighed/not available for weighing (ii) All the monthly boxes have not been filled up; and AWW instead of writing August in the month box she has written September (iii) Plotting of weights for April 2007 to August 2007 is incorrect.

2 (i) Explain her that birth date should be written at the margin of the first month box, also explain to put dotted line while plotting when the child is unavailable for weighing or weight is not available. Explain to her that filling the month boxes up to 60 months will make her work easy and this has to be done from the first day of plotting.

(ii) To plot the weights each month, she has only to locate the completed month and plot the weight. It will also help to avoid mistakes of missing out a month or plotting weight in the wrong month column.

(iii) Since the AWW has made a mistake in plotting weights, which are between 500 gm and a kilogram, she probably does not know how to plot these weights correctly. You should explain this to her that she has to record weight with 100 gm fractions and use marking

accordingly to plot these weights. Correct one plotting in front of the AWW and then ask her to correct the second plotting according to the advice. Make the AWW correct this mistake in other growth charts in the growth chart register.

Exercise 16

A.1) (a) The information box has not been filled, (b) Till August 2006, there is too uniform weight gain, from March-August 2007 peculiar growth pattern which is a little unusual.

(2) (a) Make the AWW complete the information box. (b) From the weights written below the age column, it can be seen that all the weights are either in kilograms or 500 gm. Probably, the AWW is rounding off the weights to 500 gm. The child, after 6 months, gains 200-300 gm every month. Due to rounding off the weights to 500 gm, the weight gain is not evident every month. Ask the AWW to weigh a child and explain how to read the weight to the nearest 100 gm.

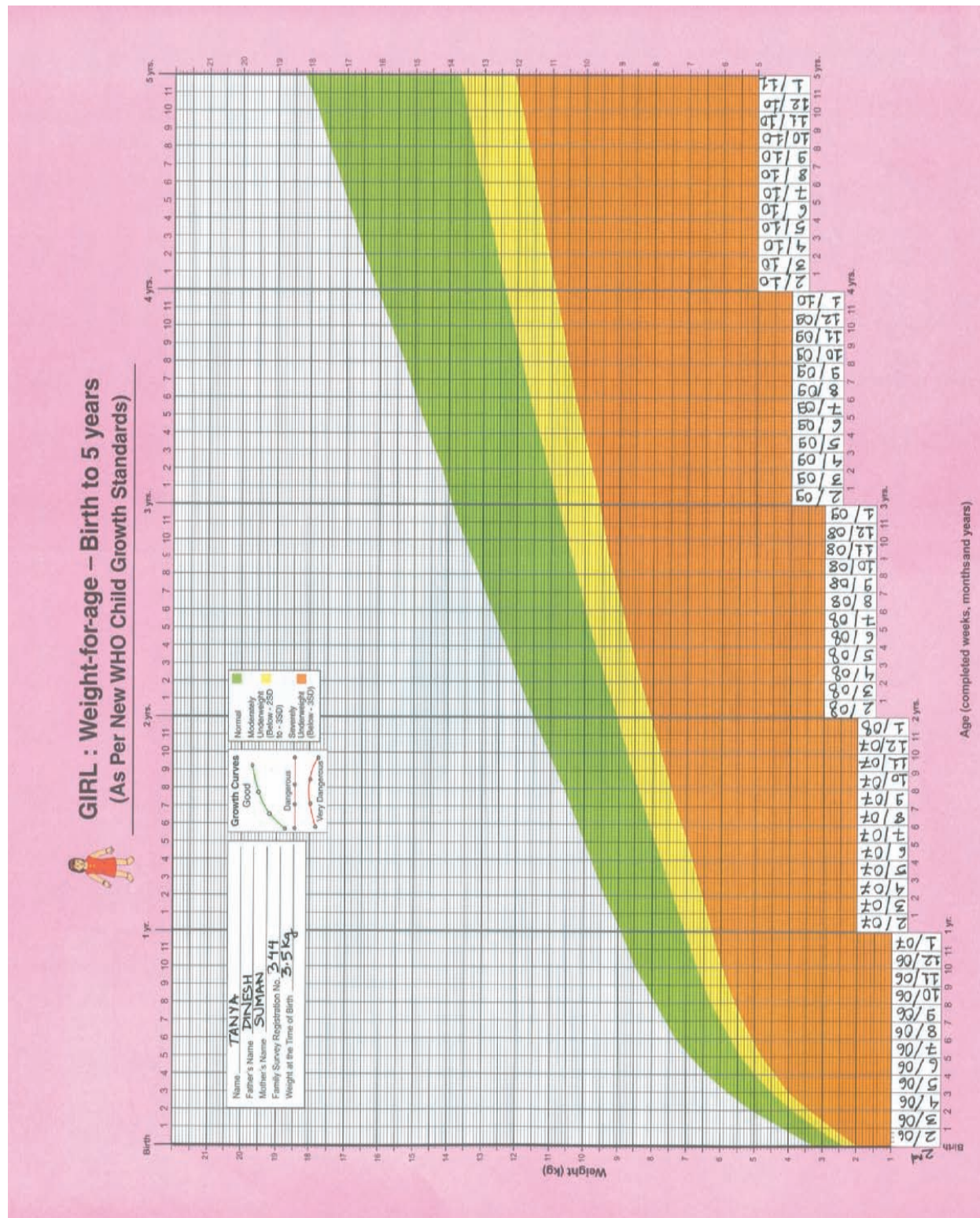
Exercise 17

Ask the AWW about total number of families and the children in these families enlisted as beneficiaries at the AWC. Find out the number of children, especially between birth-3 years, whose growth charts are not being maintained. Explain to the AWW that monitoring the growth of younger children is more important since they grow rapidly and at the same time are vulnerable to diseases. Discuss with her any problems she faces to reach these children. Work out some solutions to ensure that these children are weighed. Ask the AWW to call some of the mothers whose children have been missed out. Help her to weigh these children and start the growth charts. Talk to these mothers and explain to them they must get their children weighed after a month's gap.

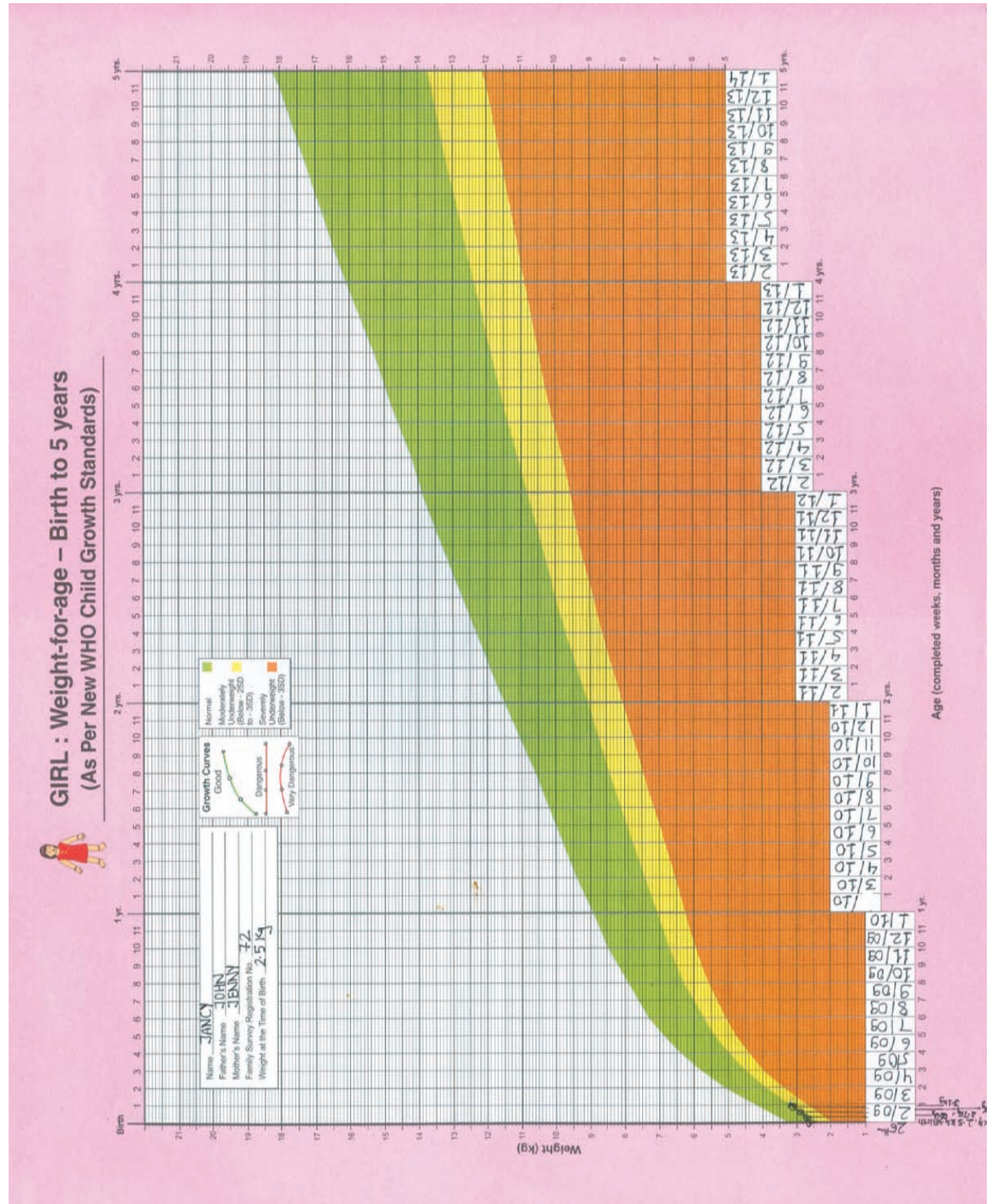
Exercise 18

A. (i) AWW did not show the growth chart to the mother to explain her that Rashmi had not gained weight in last month. (ii) AWW did not ask the mother reasons for the child not gaining weight or – any illness, (iii) since Rashmi is 7 months old in October, 2007; the AWW should first ask if the mother has started solid foods. If not, then AWW should tell her (a) the need to start soft foods (if she has not started) (b) If she has started soft food, ask her the quantity of food she gives. (iv) The statement that mother should make use of services of the Anganwadi is very vague. She should explain to the mother that the Anganwadi will provide supplementary food to Rashmi to help her gain weight and she should come to the AWC every day at 11.00 a.m. (or at the time when supplementary food is given).

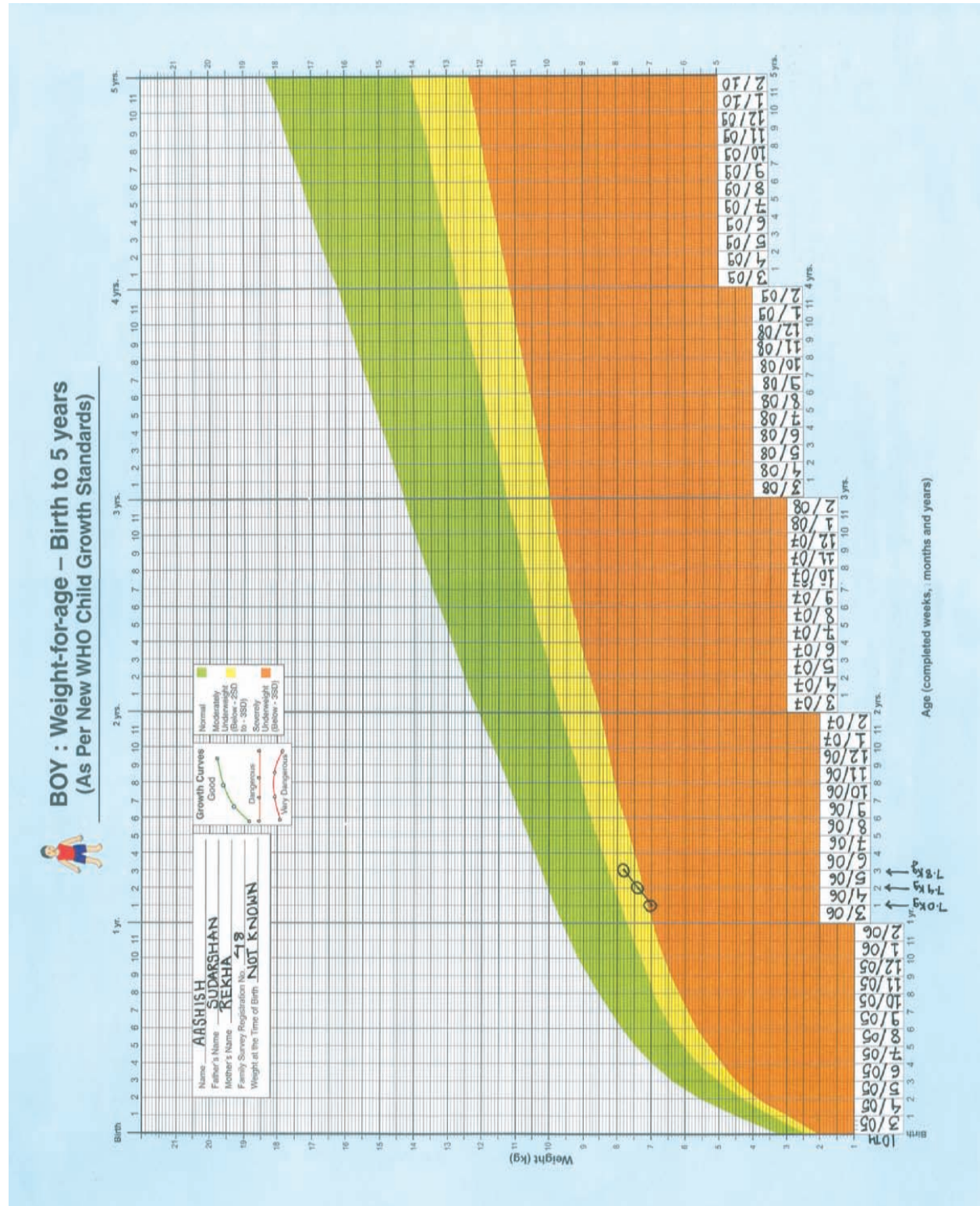
GROWTH CHART OF TANYA (EXERCISE 5)



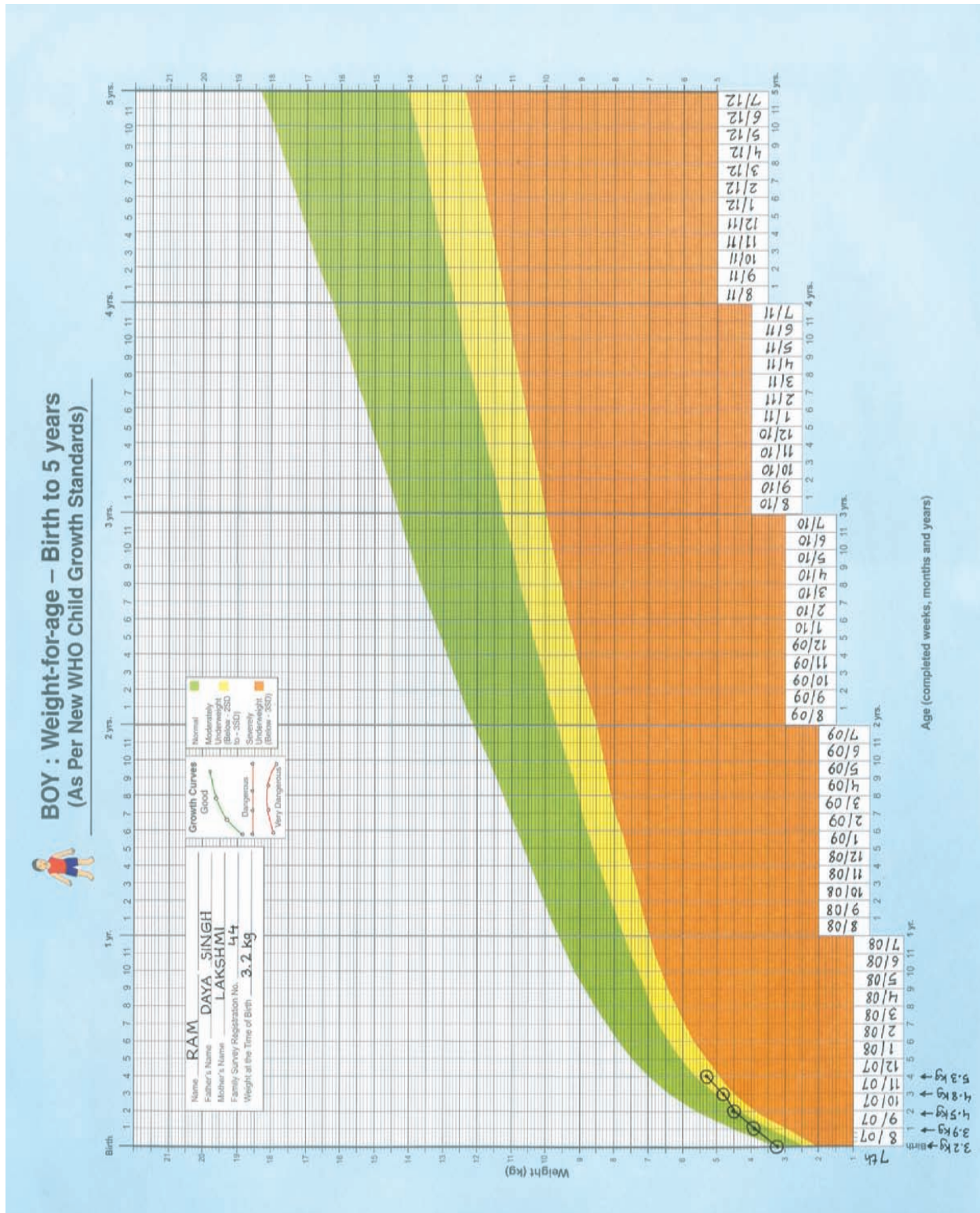
GROWTH CHART OF JANCY (EXERCISE 6)



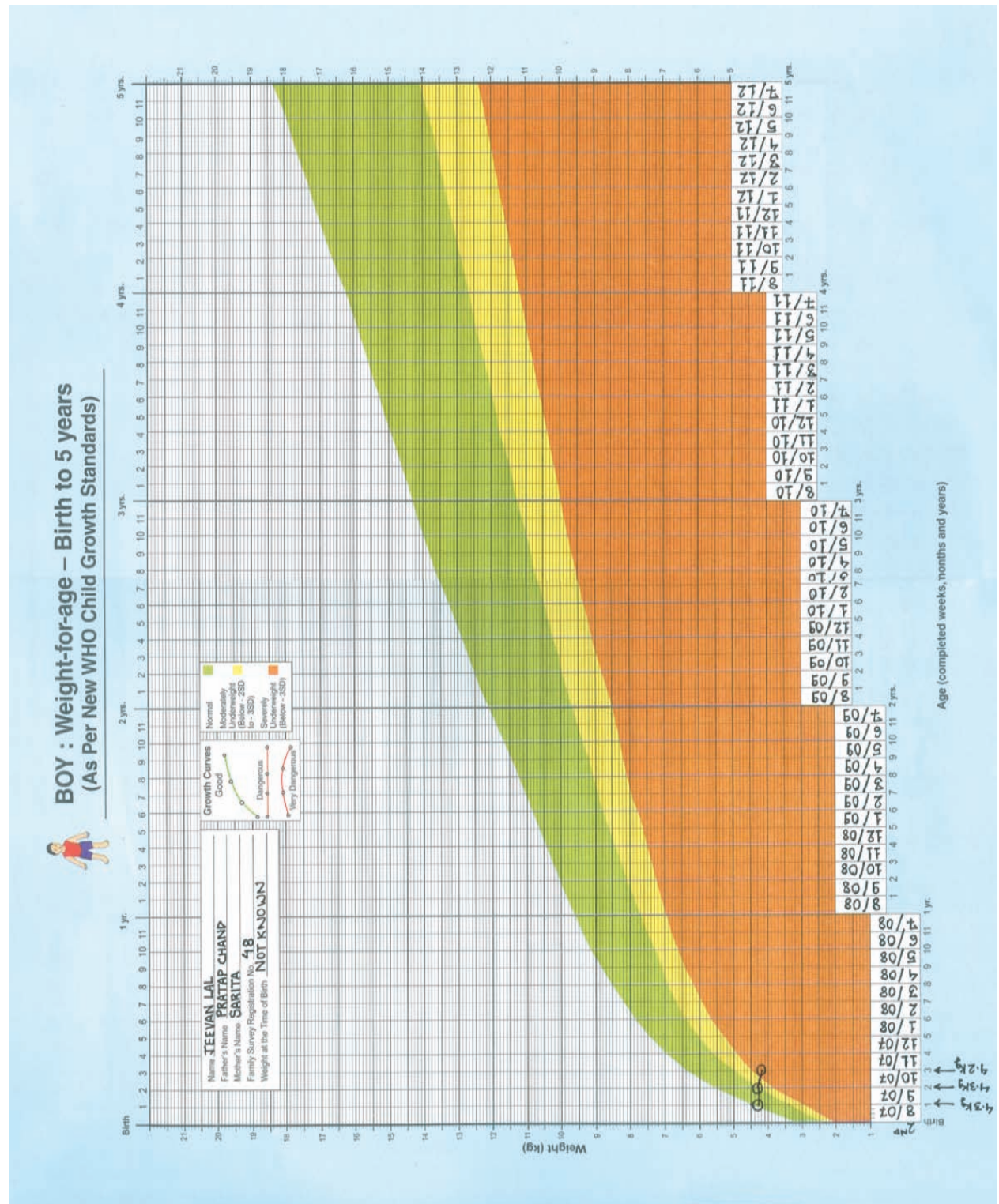
GROWTH CHART OF AASHISH (EXERCISE 7)



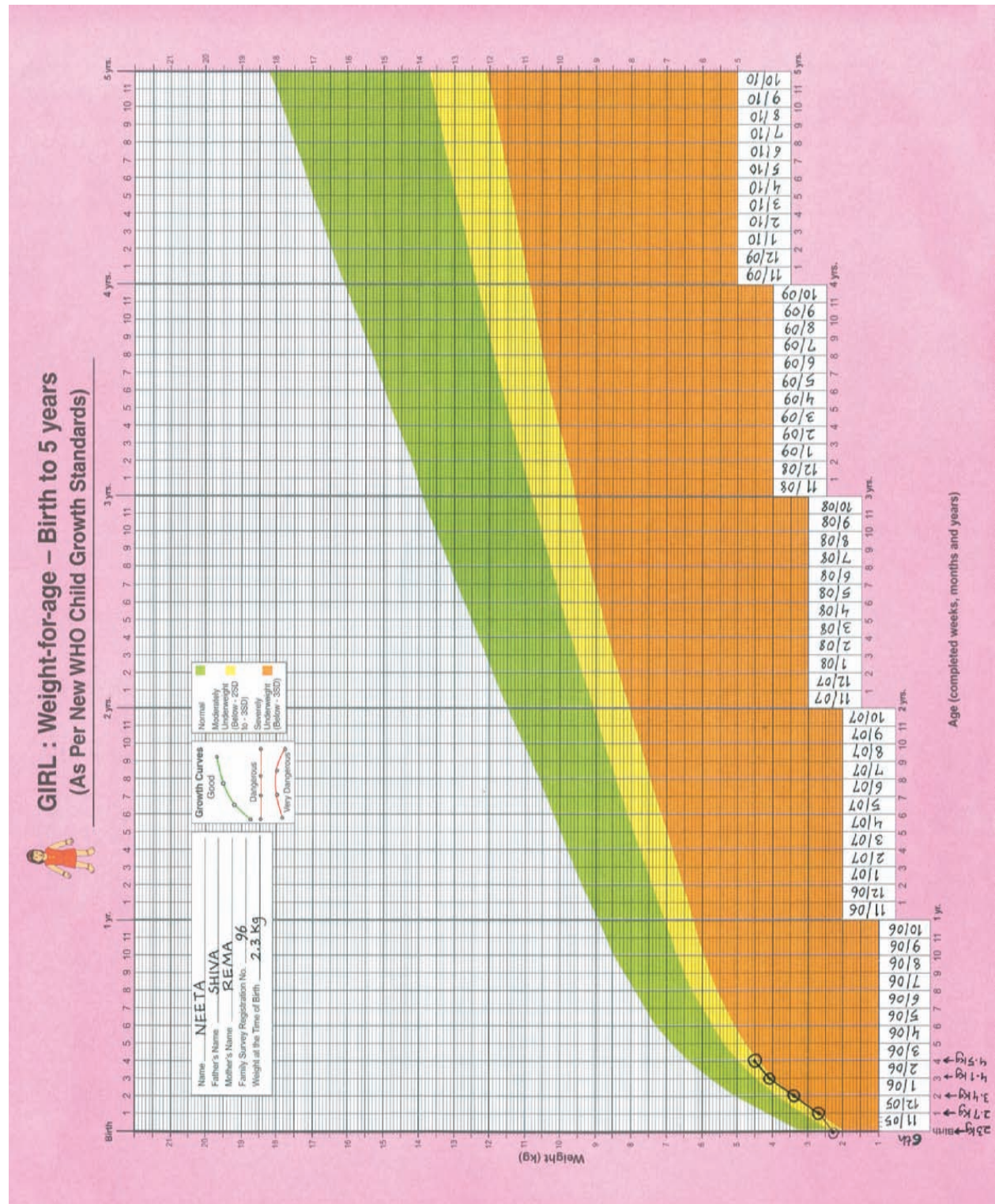
GROWTH CHART OF RAM (EXERCISE 8)



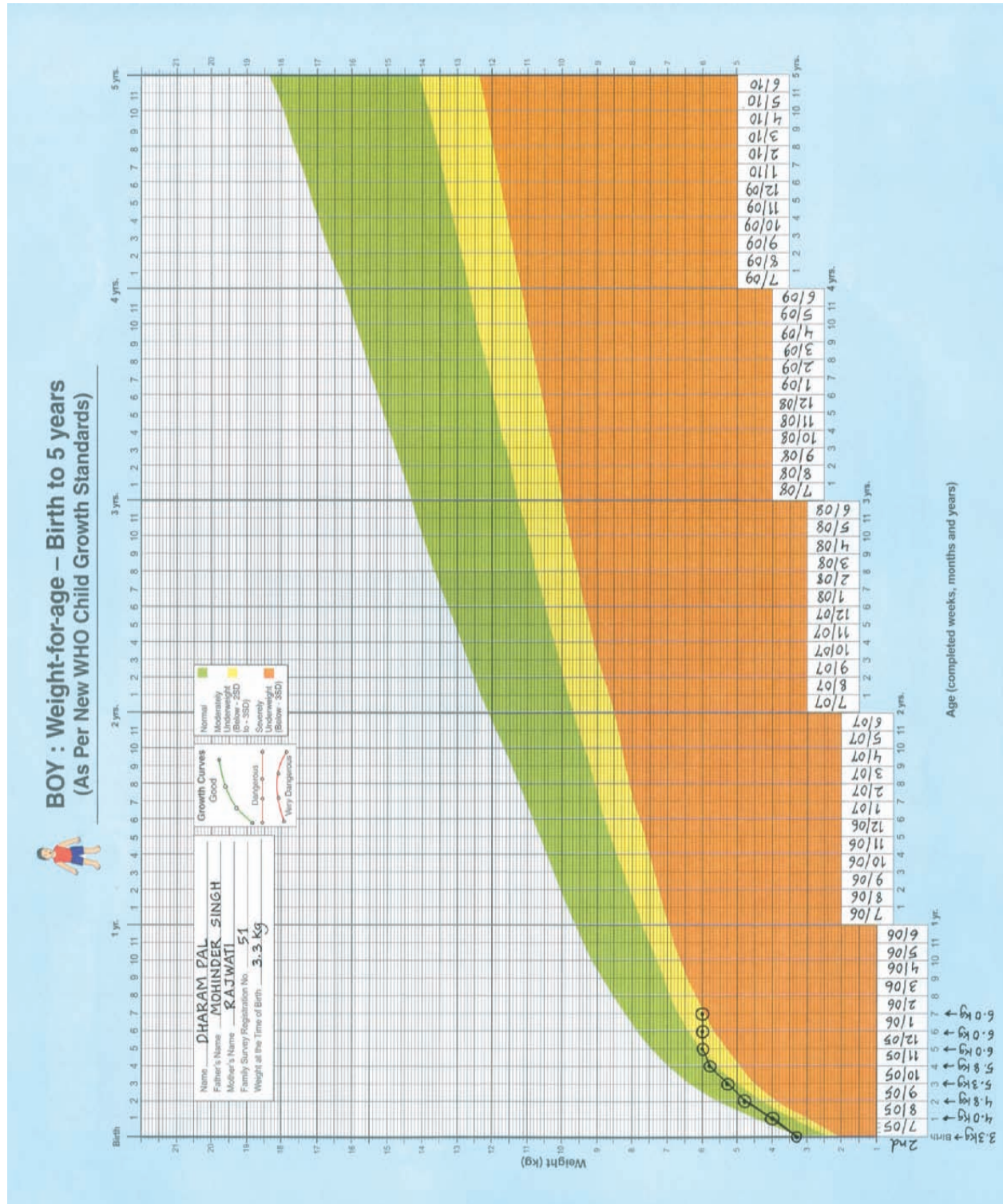
GROWTH CHART OF JEEVAN LAL (EXERCISE 9)



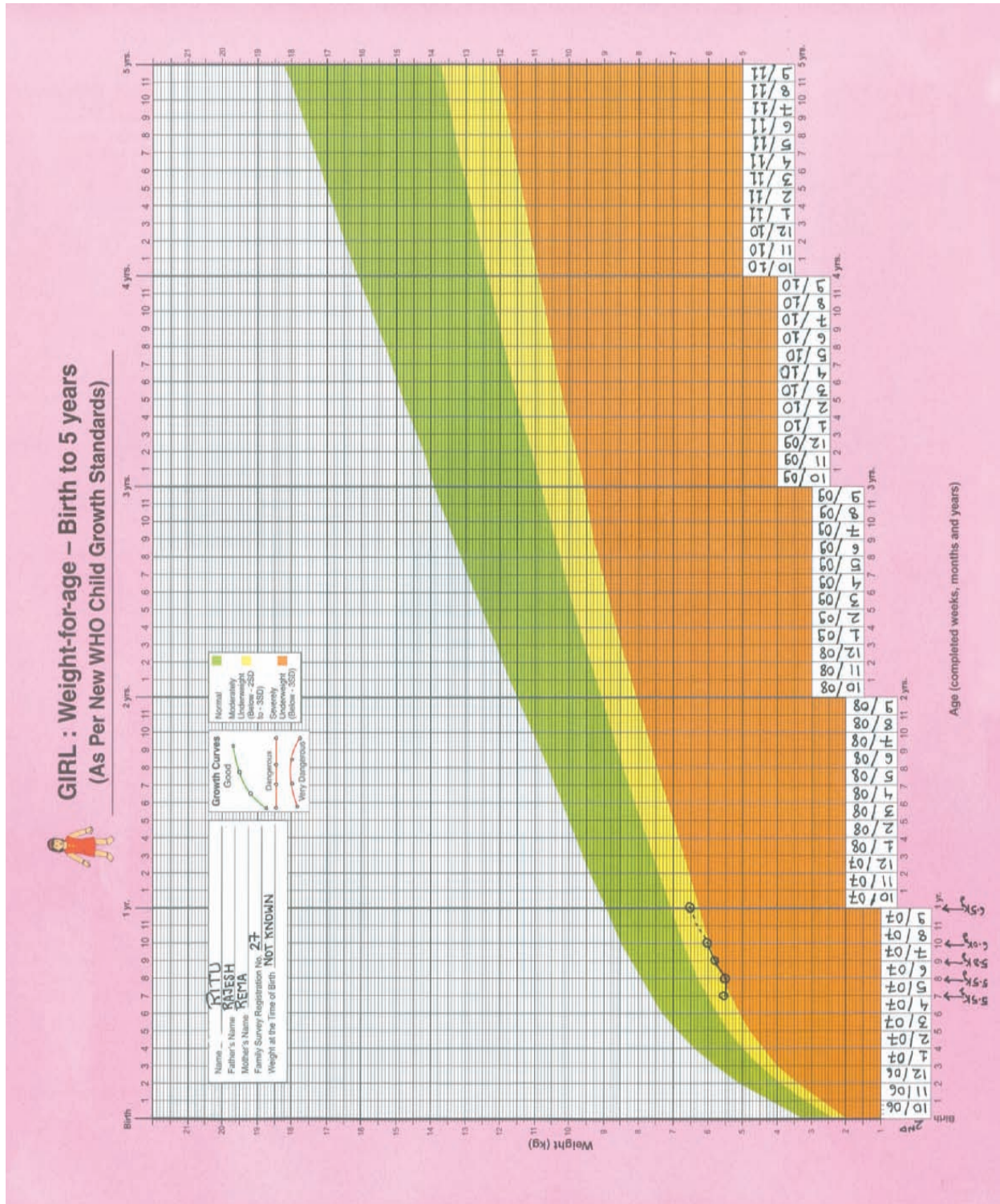
GROWTH CHART OF NEETA (EXERCISE 10)



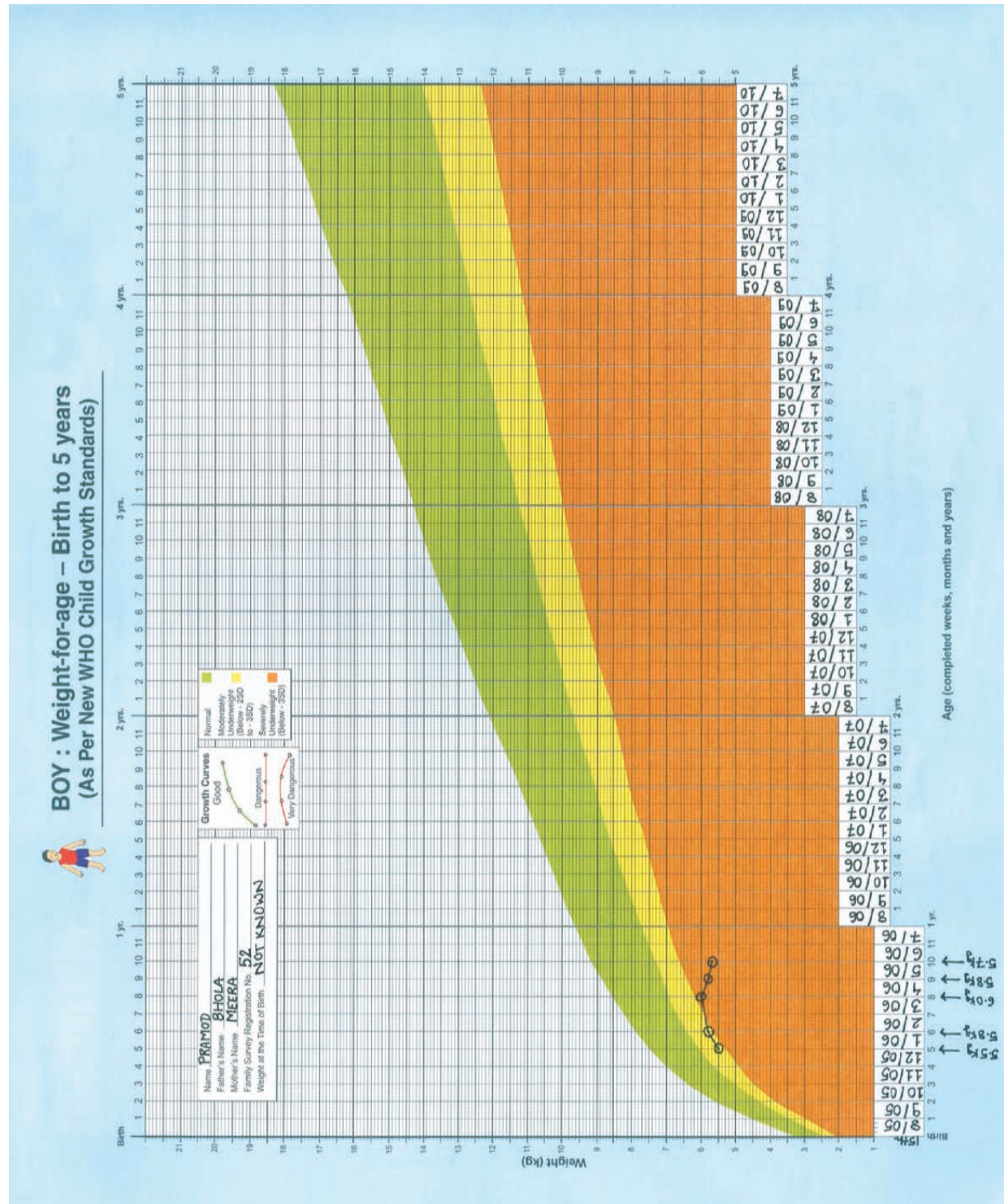
GROWTH CHART OF DHARAM PAL (EXERCISE 11)



GROWTH CHART OF RITU (EXERCISE 12)



GROWTH CHART OF PRAMOD (EXERCISE 13)





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