In order to accurately reflect health status, measurements must be taken carefully using standardized techniques. The results must be recorded accurately and compared with the appropriate references. Measurements do not need to be done twice, if the one measurement is done correctly, using proper equipment and technique. If there is any doubt about the accuracy of a measurement, it should be repeated.

Measuring Recumbent Length of Infants and Young Children

Until age 2, children must be measured in the recumbent position. Between 2 and 3 years of age the CPA (or individual measuring the child) must decide whether a recumbent or standing measurement is most appropriate. If the child is <32”, a recumbent measurement must be used, because the charts based on standing height apply only to heights ≥ 32”. For children 2 to 3 years of age, taller than 32”, the best guideline is to think about the physical abilities of the child. Generally, if a child can stand unassisted and follow directions for proper positioning, a standing measure should be taken. If the child cannot stand straight, a recumbent length should be measured.

- **birth to 24 months** ………measure recumbent length
- **between 2 and 3 years of age:**
  - if < 32”………………..measure recumbent length
  - if ≥ 32”
    - if child can stand unassisted in proper position, measure standing
    - if child cannot stand properly, measure recumbent length
- **over 3 years of age** ……………..measure standing height

A. Equipment:

Use a recumbent measuring board with a fixed headpiece and sliding foot piece that are both perpendicular/upright (form a 90-degree angle) to the measurement surface. Measurements should be readable to the nearest eighth of an inch. Using only a common measuring tape to determine recumbent length is not appropriate, since this technique is likely to produce inaccurate results.
B. Technique

Two people, the measurer and an assistant, are needed to measure recumbent length. The assistant could be the mother or caregiver. To measure recumbent length, follow these steps:

1. Put a clean cloth or paper on measuring board.

2. Remove shoes and hats, and flatten interfering hairstyles (if possible).

3. With the help of an assistant, lay the child flat on his/her back on the measuring board with their head located at the end with the fixed headpiece.

4. Assistant should stand directly behind headboard and cup her hands over the child's ears while holding the child's head firmly against the headboard. Child's eyes should be facing upward, with the line of sight and Frankfort Plane perpendicular to the measuring surface. The top of her/his head should be touching the headboard. See glossary in introduction for complete description of Frankfort Plane.
5. While the assistant holds the infant’s head in the proper position, the measurer aligns the infant’s trunk and legs, and extends both legs, placing one hand on the infant’s knees to maintain full extension. Bring the footpiece firmly against the infant’s heels. The infant’s toes should point upward.

*Infants often bend or curl their toes and push them against the movable footpiece, which may result in an inaccurate (long) value. Try gently massaging the infant’s feet to relax their toes.*

*It is imperative that both legs be fully extended for an accurate measurement. If only one leg is extended, the measurement will likely be inaccurate. Correctly positioning the infant for a length measurement requires two people.*

7. Read the measured length to the nearest *eighth of an inch*.

8. Record the length immediately.

---

**CHECKLIST FOR RECUMBENT LENGTH**

**Did you…**

- have the mother or assistant help by holding the child’s head (cupping her hand over the child’s ears) in the correct position according to the Frankfort Plane?

  **NOTE:** To determine the Frankfort Plane, look at the side of the head and draw an imaginary line from the bottom of the eye socket to the hole in the ear (beginning of the auditory canal). This line should be perpendicular (at a right angle) to the surface of the measuring board under the child’s back.  
  *(See diagram on previous page.)*

- ensure that the child was straight and centered on the board from head to feet?

- extend both legs and ensure that the toes were pointing up?

- bring the footpiece firmly against the child’s heels?

- carefully record the measurement?
C. Reading the Measurements

Proper technique is essential when measuring the recumbent length of a child. Equally important is a correct reading of the measurement. This can be difficult, since the increments on the measuring board "tape" are quite small. It is important for you to understand fractions of an inch to accurately read the measurement. Below is an enlarged portion of a tape.

If you look between the longer lines that mark each inch (example above shows 29 to 30 inches), you see there are smaller lines between them. Beginning at 29, move to the right to the next smaller line, counting each of the spaces between the lines. There are seven lines between the inch marks, and eight spaces. Each space, lying between two of the small lines, represents one-eighth (1/8) of an inch. (Remember that the total number of spaces between inch 29 and inch 30 pictured above is eight.)

When measuring an infant’s or child’s recumbent length, you need to measure to the nearest eighth (1/8) of an inch. You will need to count the number of lines (or eighths) that are to the right of the whole inch mark.

Looking at where the arrow is pointing in the example below, you would count three lines from the 29 inch mark, which would make it 29 and three-eighths inches (29 3/8).

Some measuring tapes have additional lines between eighth inch (1/8) marks. These are sixteenth inch (1/16) marks. (See example below.) Do not let this confuse you! Ignore the smaller (sixteenth) lines and read to the nearest eighth mark. Looking at where the arrow is pointing in the example below, you would count three lines from the 29-inch mark, which would make it 29 and three-eighth inches (29 3/8).
D. Rounding the Measurements

Many recumbent length and height measurements will not fall directly on an eighth inch (1/8) increment. Therefore you will need to round your reading. Round as follows:

- If the measurement lies closer to one of the eighth (1/8) marks than to another, round to the nearest eighth mark. In the example below, the measurement lies closer to 33 1/8 than to 33 inches; therefore, round to 33 1/8 inches.

  ![Measurement Example]

- If the measurement falls exactly between two eighth marks, round down to the lower eighth mark.

E. Recording the Measurements

Length and height measurements are recorded in the clinic software in Inches and Eighths of inches. In the example above, 33 1/8 inches will be recorded in the clinic software as:

![Measurement Software Example]

All fractions for height measures are recorded as eighths of inches.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Record as</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8 inch</td>
<td>1/8”</td>
</tr>
<tr>
<td>1/4 inch</td>
<td>2/8”</td>
</tr>
<tr>
<td>3/8 inch</td>
<td>3/8”</td>
</tr>
<tr>
<td>1/2 inch</td>
<td>4/8”</td>
</tr>
<tr>
<td>5/8 inch</td>
<td>5/8”</td>
</tr>
<tr>
<td>3/4 inch</td>
<td>6/8”</td>
</tr>
<tr>
<td>7/8 inch</td>
<td>7/8”</td>
</tr>
</tbody>
</table>
QUESTIONS

Fill in the blank with the correct letter.

7. Until what age at a minimum, should a child be measured lying down (recumbent)?
   ____ (a) 6 months
   ____ (b) 1 year
   ____ (c) 2 years

Mark the following true (“T”) or false (“F”):

8. ____ It is very difficult for one person alone to obtain an accurate recumbent length measurement of a child.
9. ____ Recumbent length for children should be read to the nearest 1/4 inch.
10. ____ If a 30 month child cannot cooperate with the standing measurement process is it appropriate to measure this child using the recumbent board.

Circle the correct answer.

Look at the enlarged portion of a ruler below:

11. The arrow is pointing at
    a. 5/8
    b. 3/8
    c. 4/16
    d. 6/8

12. The actual measurement is
    a. 30 2/8
    b. 30 3/8
    c. 29 3/8
    d. 29 5/8
Circle the correct answer.

Look at the enlarged portion of ruler below:

13. The arrow is pointing at __?__ mark:
   a. 6/8  
   b. 6/16  
   c. exactly between 6/8 and 7/8  
   d. 7/8

14. The measurement you record is:

15. How should the following length values be recorded in the clinic software?

   a. 29 3/8 enter as:  
   b. 29 ¼ enter as:  
   c. 29 ½ enter as:

Now, check your answers against the Answer Key at the end of this module.
Measuring Weight For Children Younger Than 24 Months of Age (2 YEARS)

A. Equipment

Use either a digital or a beam balance scale. The scale must be capable of weighing up to 40 pounds and weigh in ½ ounce increments. The tray should be large enough to fully support the infant. The scale should be easily zeroed. Further it must have features that allow calibration. The balance scale should have a non-detachable balance weight, a zero adjustment weight, and free-sliding weights (non-detachable) on both main and fractional beams. The scale should be clearly marked in increments of one-half (½) ounce.

All scales must be placed on a hard, level, flat surface. Scales should not be placed on a rug!

Digital and balance beam scales can usually be read in either pounds or kilograms. Make sure the digital scale is set to measure pounds and that the weights on the balance beam scale are properly placed so that they settle into the pound increment slots.

B. Technique

1. Balance the scales at zero. If a paper drape or pad is used, zero the scale with the drape or pad on the tray, by placing the main and fractional sliding beam weights directly over their zero positions. Check to see if the scale balance indicator is centered, assuring that the scale is ‘balanced’ at zero. For digital scales, place drape on scale before turning the scale “on”.

2. Ask the mother/caregiver to undress the child, removing the child's outer clothing including shoes, hats, mittens, jackets, sweaters, sweatshirts and jump suits, etc. It is recommended for accurate weighing to undress the child to only a T-shirt and dry diaper. (A wet diaper can weigh as much as 2 ½ pounds!)

NOTE: Light clothing may be worn based on the temperature of the clinic, but it is necessary to document this in the participant record.
3. Lay the very young child/infant in the center of the scale. Older toddlers may sit in the center of the scale (some scales have an attachment shaped like a car seat rather than a flat weighing surface).

For Balance Beam Scales:

4. Move the weight on the main beam away from the zero position until the indicator drops below center, showing that a little too much weight has been added. Then move the weight back towards the zero position until the indicator rises slightly, showing that just a little too much weight has been removed. Move the weight on the fractional beam away from its zero position until the indicator is at center, indicating that the child and the weights are in balance with each other. You may have to go back and forth with the fractional weight a few times to reach the balance point. (See illustration below)
5. When using pediatric scales, read the weight to the nearest one-half ounce. (An ounce is 1/16th of a pound.)

6. Immediately record the weight in ounces.

7. Return the weights to the zero position at the left-hand side of the scale to help maintain scale accuracy. Remove the disposable paper cloth.

For Digital Scales:

8. Wait for the reading and record the result.

NOTE: The scale should rest on a firm, stable, and level table, and care must be taken to protect the child from accidents throughout the procedure. An adult must be able to reach the infant/child at all times.

Sometimes a child may be difficult to measure. However, make every effort to obtain as accurate a measurement as possible by asking for assistance and using toys or mobiles to distract the child. Inappropriate counseling and education may result from inaccurate measurements. A parent may worry unnecessarily about poor growth or overweight when the child is actually growing appropriately, or a true growth problem may not be identified due to inaccurate measurements.

As anthropometric data is required to help determine WIC eligibility, in cases of extreme difficulty, the following alternative is suggested. If a child is screaming, kicking, and cannot be comforted, he can be weighed in his mother's arms. First, the mother is weighed alone and her weight is recorded. Next, the mother is weighed with the child and this second weight is recorded. The mother’s weight is then subtracted from the second reading (mother and child together). Record "weight obtained in mother's arms" in the participant record.

NOTE: Some digital/electronic scales have a tare feature, which allows you to zero the scale while the mother is on it, before handing her the infant. With this feature, only the weight of the infant will appear in the scale display after the mother's weight is tared.
C. Reading the Measurements

Using proper techniques when taking the weight of an infant/child is very important. Equally critical is knowing how to properly read the measurement. This can be difficult, as each increment on the beam balance baby scale is quite small. You may also not be familiar with measuring weight in ounce (oz) components. Ounces are fractions (smaller units) of a pound (lb).

Reading Measurements from Balance Beam Scales:

One pound equals 16 ounces. Therefore, one half of a pound equals 8 ounces.

\[
1 \text{ lb} = 16 \text{ oz} \\
\frac{1}{2} \text{ lb} = 8 \text{ oz}
\]

Below is an enlarged portion of the fractional beam balance on a baby scale.

This is an enlarged view of the ounce portion of the infant balance beam scale. The scale is marked in one-half ounce increments, allowing the measurement to be done to the one-half ounce. The infant weight is recorded in ounce measures and so the staff person must round the measure to the nearest ounce. If the scale measures as exactly one-half ounce, the measure should be rounded down.

To what ounce is the arrow pointing to below?

The arrow is pointing to between 6 and 7 ounces, but it is closer to 6 ounces, and therefore it should be recorded as 6 ounces.
Reading measurements from Digital Scales:

Infant digital scales read in pounds, ounces and one-half or smaller increments of ounces. **We will record to the nearest ounce.** If the measurement result is 18 pounds 2 and a half ounces record 18 pounds and 3 ounces (round to the next full ounce).

Infant digital scales have a read out panel that looks similar to this:

First two digits indicate pounds, the next two digits indicate ounces and the last digit indicates fractions of ounces.

A reading of .1 up to .4 ounces must be recorded as the last full ounce (round down), and .5 to .9 ounces must be recorded as the next full ounce (round up).

<table>
<thead>
<tr>
<th>These weight measures</th>
<th>should be recorded as</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.09.0</td>
<td>Round down 8 pounds 9 ounces</td>
</tr>
<tr>
<td>08.09.1</td>
<td>8 pounds 9 ounces</td>
</tr>
<tr>
<td>08.09.2</td>
<td>8 pounds 9 ounces</td>
</tr>
<tr>
<td>08.09.3</td>
<td>8 pounds 9 ounces</td>
</tr>
<tr>
<td>08.09.4</td>
<td>8 pounds 9 ounces</td>
</tr>
<tr>
<td>08.09.5</td>
<td>8 pounds 10 ounces</td>
</tr>
<tr>
<td>08.09.6</td>
<td>8 pounds 10 ounces</td>
</tr>
<tr>
<td>08.09.7</td>
<td>8 pounds 10 ounces</td>
</tr>
<tr>
<td>08.09.8</td>
<td>8 pounds 10 ounces</td>
</tr>
<tr>
<td>08.09.9</td>
<td>Round up 8 pounds 10 ounces</td>
</tr>
</tbody>
</table>

If your scale measures in one half-ounce increments, the last digit will read .0 or .5. In the case of a scale that reads only in ½ ounce increments, record .0 as the last full ounce, and .5 as the next full ounce.
Review the following examples, all these examples are for scales that measure to 1/10th ounces.

Digital scale example 1:

\[22.10.5\]

This is twenty-two pounds and ten and one half ounces.
   It should be recorded as 22 pounds 11 ounces (round up for .5 to .9 ounces)

Digital scale example 2:

\[24.11.7\]

This is twenty-four pounds and eleven and seven-tenths ounces.
   It should be recorded as 24 pounds 12 ounces (round up for .5 to .9 ounces)

D. Recording weight measures in WIC Clinic Software

Weights for infants and children less than two years are measured in pounds and one-half ounces and entered in the clinic software as pounds and ounces.

To record the example above (24 pounds 11 and 7/10ths pounds):

*Eleven and seven tenths ounces should be rounded to 12 ounces.*
Mark the following statements "T" for True and "F" for False.

16. ____ Children younger than age 24 months may be weighed wearing a wet diaper.

17. ____ Weight of children younger than 24 months should be read to the nearest one-half ounce.

Use the enlarged portion of the beam balance of the baby scale pictured below to answer question 18. Circle the correct answer.

18. What measurement (in ounces) is the arrow pointing to?


What fraction of a pound is 12 ounces? 1/4 3/4 7/8 1 ½

20. Assuming you are using a scale that measures to 1/10th ounce increments, how should 10.4 ounces be recorded in the clinic software?

11 ounces 10 ounces 10.4 ounces

Now, check your answers against the Answer Key at the end of this module.
MEASURING STANDING HEIGHT OF CHILDREN AND ADULTS

A. Equipment

- A measuring board with a moveable headboard, called a stadiometer, may be used. The board should be marked in eighth-inch (1/8”) increments. The headboard should be wide enough (at least 6 inches) to measure the participant's crown (top of head) and create a right angle to the measurement surface. The stadiometer may be mounted on a wall in a fixed position, or it may be portable.

- A measuring rule made of a flat, metal material that can be attached to a wall (or any vertical, flat surface) may be used. The rule must be marked in eighth-inch increments. A headboard or right angle block at least 6 inches wide must be used with this technique.

- A step stool or short stepladder for the staff to stand on to accurately read the height of an adult is necessary.

NOTE: Do not use the movable measuring rod on platform scales for measuring height. It is not accurate because it is too narrow, unsteady, and the headpiece is easily bent. Also, they are difficult to read because a measuring rod on a scale telescopes into itself at certain sections, contributing to error when reading the measurement.

B. Technique

1. Remove shoes, hats, and hair accessories. Flatten interfering hairstyles, if possible.

2. The child or adult should stand tall and straight, with heels close together, shoulders level and relaxed, hands at sides, facing away from the measuring board. Heels, buttocks, shoulders and head should touch the measuring board. If making all these points touch is impossible or uncomfortable, have as many of these points touch as is possible. Ask the participant to inhale deeply and to stand fully erect without altering the position of the heels. Make sure that the heels do not rise off the foot plate.

3. The assistant, which could be the mother, presses the knees and feet firmly so they are straight.

4. The person taking the measurement should be directly to the left side of the child or adult.
Standing Height*

5. Determine the position of the head by locating the Frankfort plane, which is the imaginary line drawn from the hole in the ear to the bottom of the orbit of the eye (the eye socket). The Frankfort Plane should be perpendicular to the measuring board (refer to page 10) that is located behind the child’s head. The participant may appear to be looking slightly downward, but do not be concerned about this, as this will ensure that the crown of the participant’s head is in the proper position to measure standing height of the head.

6. Lower the headboard (or right angle block) until it firmly touches the crown of the head and creates a right angle with the measurement surface. Ensure that the lower body stays in position by having the assistant firmly pressing their hands on the knees and ankles.

7. Read the stature to the nearest eighth of an inch.

8. Record the measurement immediately.

9. Use a step stool whenever the person being measured is taller than the person doing the measuring.

NOTES:

1) It is helpful to have two people taking the height of a child: one to hold the lower body (i.e., knees and feet) in position, and one take the measurement. This will not be necessary for adults or older children, but be sure to check positioning before taking the measurement.

NOTES: (cont’d)

2) If a child or adult has an elaborate hairstyle that affects measurement and cannot be altered, note this in the record.

3) With preschool age children, the heels will likely touch the back of the board or wall. For older or overweight children, the heels will probably be away from the wall.

4) Women must be measured. Self-reported height is NOT acceptable.

C. Reading the Measurement

Reading the measurement for a standing height is very similar to reading the recumbent length (refer back to page 12). The tape may look a bit different but the principles are the same. Remember that you are still reading to the nearest eighth (1/8) inch.

See if you know to which eighth of an inch the arrow is pointing on this enlarged portion of an inch.

|   |   |   |   |   |   |   |   |   | 40 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 39 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

If you said 2/8ths you are correct (2/8ths is equivalent to 1/4th).

NOTE: When you are taking a standing height, it is important that your eyes are at the same level as where you are reading the measurement. Therefore, you may have to bend down when measuring a child or use a stepstool when measuring adults.
D. Rounding the Measurement

As with recumbent measures, read to the closest 1/8 inch. If the measured value appears to be exactly between (in the middle of) two of the eighth lines, then round down to the lower eighth-inch line and record the measurement.

E. Recording the Measurement

Height measurements are recorded in the WIC clinic software as inches and eighths inches. In the following example, the child’s height should be entered as 41- 3/8 inches.

In the WIC clinic software it will look like this:

Note: “Standing” must be indicated in “Measurement Position” field

All measures are recorded in inches. For adults, height in feet will need to be converted to inches. For example, the measure for a woman who is 5’ 7 ¾”, will be recorded 67 and 6/8 inches. (Convert 5 feet to 60 inches; add seven inches to get 67; then convert ¾ inch to 6/8 when recorded as eighth inches.)

Self-reported height is not acceptable. For women ≥ 20 years of age, height must be measured at their first certification. Women less than twenty years old, must be measured at each certification.
Put a check mark next to the correct answer.

21. Height should be taken:

   ___(a) with shoes on    ___(b) without shoes    ___ (c) doesn't matter

22. Using a fixed measuring stick or metal tape on a wall (assuming the wall is smooth with
nothing that interferes with the fixed tape) can be a way to measure height because: *(check
as many as apply)*

   ___(a) The participant stands firmly on the floor, body upright and against the wall.
   ___(b) It doesn't matter if the participant is wearing shoes.
   ___(c) The headboard may be placed at right angle to wall.

23. The Frankfort plane is: *(check one)*

   ___(a) a 747 airplane that takes you to Frankfurt, Germany.
   ___(b) a position for weighing a child 2 years and older, and adults.
   ___(c) a German type of hotdog eaten with sauerkraut.
   ___(d) an imaginary line drawn from the opening of the ear canal to the bottom of the
eye socket that is used to determine the proper head position to measure height or length.

Circle “T” for true or “F” for false.

24. When measuring height of children and adults, the WIC staff person should look for the
participant's Frankfort plane.

       T   F

Now, check your answers against the Answer Key at the end of the module.
MEASURING WEIGHT OF CHILDREN AND ADULTS

A. Equipment:

A beam balance scale with a platform and free-sliding weights (non-detachable) that measures to $\frac{1}{4}$# (4 oz.) or good quality digital scales are the recommended equipment. Both types of scales must measure in $\frac{1}{4}$ # (or less) increments, must be capable of being “zeroed” and it must be possible to calibrate the scales.

Good quality digital scales have some desirable features, such as ability to hold the weight reading of a moving child, and automatically zero before and after weighing.

NOTE: Spring scales (such as bathroom scales) may not be used. The spring stretches and loses accuracy over time and many spring scales are not capable of reading more accurately than 1/2 pound (lb.).
B. Technique for Balance Beam Scales

1) Confirm that the sliding weights on the horizontal beam are at the zero position and that the scale is in balance.

2) Remove all heavy clothing and shoes, toys, packages and purses. At minimum, take off shoes or boots, all outerwear and heavier clothing, such as jackets, sweaters or sweatshirts.

3) Have the participant stand on the scale with both feet in the center of the platform with body upright and arms hanging naturally.

4) To take the reading, move the large counterbalance on the main beam away from the zero position until the indicator drops showing that a little too much weight has been added and then move the weight back to the closest position. Repeat the above procedure with the fractional beam until the indicator rests in the exact center.

5) Read the weight to the nearest ¼# (or 4 ounces).

6) Immediately record the measurement in Ounces. If ounces are not marked, record the nearest ¼ pound.

7) Return the weights to the zero position at the left-hand side of the scale.

Technique for Digital Scales

Turn on or activate the scale, and continue with steps 2 and 3 above. Then read the weight in the display area of scale. The value will have a decimal place (.), which means that units smaller than a pound are measured as tenths of a pound. Record the weight including the fraction of a pound. See chart on page 30 for how to record tenths of pounds.

NOTE: The scale should rest on a firm, flat, surface – not on a rug.
C. Reading/Rounding the Measurement

Beam Balance Scale
Correctly reading/rounding and recording the weight measurements is important. If the value is incorrectly read, rounded or recorded, the woman’s BMI and weight change will not be correctly calculated and displayed. Additionally, incorrect risk codes might be assigned or risk codes might not be assigned.

Reading the balance beam scale: the balance beam scale is marked in pounds and quarter pounds. Adults and older children are weighed to the quarter (1/4) of a pound.

Rounding the measurements for the balance beam scale: the same rules apply as for all the other measurements. Round to the nearest 1/4 pound. Round down if the measurement lies exactly in the middle of two quarter-pound lines otherwise round to the nearest 1/4 pound.

Record the quarter pounds as ounces.

- Record ¼ pounds as 4 ounces
- Record ½ pounds as 8 ounces
- Record ¾ pounds as 12 ounces

Digital Scale
The digital scale reads the weight result quickly. The value will be displayed as pounds and 1/10th pounds. For example, 125 and 2 tenths of pounds will read like this: 125.2.

In Minnesota WIC, tenths of pounds will be converted to ounces according to the following chart:

<table>
<thead>
<tr>
<th>Digital read out:</th>
<th>Record as:</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0</td>
<td>0 Ounces</td>
</tr>
<tr>
<td>.1</td>
<td>2 Ounces</td>
</tr>
<tr>
<td>.2</td>
<td>3 Ounces</td>
</tr>
<tr>
<td>.3</td>
<td>5 Ounces</td>
</tr>
<tr>
<td>.4</td>
<td>6 Ounces</td>
</tr>
<tr>
<td>.5</td>
<td>8 Ounces</td>
</tr>
<tr>
<td>.6</td>
<td>10 Ounces</td>
</tr>
<tr>
<td>.7</td>
<td>11 Ounces</td>
</tr>
<tr>
<td>.8</td>
<td>13 Ounces</td>
</tr>
<tr>
<td>.9</td>
<td>14 Ounces</td>
</tr>
</tbody>
</table>

*Local Agencies should post a copy of this chart on the digital scales so staff won’t need to think about the conversion from 1/10 pounds to ounces.*
D. Recording the Measurement in the WIC Clinic software (digital and balance beam scales)

Weight measurements for women and older children are recorded in the WIC clinic software in the ht/wt tab.

Weight is recorded in pounds and ounces.

**Example 1:** a woman is measured on a digital scale that reads: (One-hundred-twenty-five and two-tenths pounds)

Record in the WIC clinic software:

Enter 125 in the pounds field

for **digital scales** use chart on page 30 to see that “.2” is recorded as 3 ounces
Example 1 continued:

The same woman measured on a balance beam scale:

balance beam scale reads: 100 pounds and

On the balance beam scales see that the arrow points closest to ¼ pound, record as 4 ounces

Record in the WIC clinic software as:
Example 2:

A woman is measured on a digital scale and it reads: 125.5

The same woman is measured on a balance scale and it reads: 100 pounds and

\[ \begin{align*}
\text{\textfrac{1}{4}} & \quad \text{\textfrac{1}{2}} & \quad \text{\textfrac{3}{4}} \\
24 & \quad 25 & \quad 26
\end{align*} \]

\[ \begin{align*}
\text{\textfrac{1}{4}} & \quad \text{\textfrac{1}{2}} & \quad \text{\textfrac{3}{4}} \\
\text{24} & \quad 25 & \quad 26
\end{align*} \]

Record in the WIC clinic software as: 125 pounds and 8 ounces

For digital scale, using chart on page 30, convert .5 (five tenths) to 8 ounces

Balance beam scale indicates that the measure is closest to \( \frac{1}{2} \) pound which converts to 8 ounces (also found on page 30)
QUESTIONS

25. What value should be entered into the WIC clinic software for the following weight values:
   a-145.7 Pounds Ounces
   b-128.8 Pounds Ounces
   c-116.0 Pounds Ounces

Mark each as True or False:

26. _______ The scale should be balanced at zero before each weighing.

27. _______ Children can wear coats, heavy sweaters, or boots, or hold toys while being weighed, as the scale can “Tare” for these items.

28. _______ It is important that a child place both feet on the scale's platform to get an accurate weight reading.

29. _______ Weight of children over the age of two is to be recorded to the nearest one ounce.

Choose the correct answer (a, b, c, or d below).

30. 1 lb = ____ oz  ¼ lb = _____ oz  and  2 oz = ____ lb

   a) 12, 4 and 1/4
   b) 16, 4 and 1/2
   c) 8, 2 and 8
   d) 16, 4 and 1/8

Now, check your answers against the Answer Key at the end of this module.
COMMON MEASUREMENT ERRORS

The accuracy of anthropometric data is dependent on carefully following the appropriate procedures and techniques. It is also necessary to accurately record, plot and interpret the information. The goal is to minimize the number of errors that can occur. The list below identifies some of the more common errors, that staff should take care to avoid.

All Measurements:
1. Inadequate equipment (e.g., bathroom scales; stretchable tapes not properly attached to wall)
2. Poorly maintained equipment (e.g., worn, loose or broken sliding headboards and footboard on recumbent measuring boards)
3. Inaccurate reading due to active child
4. Scale not "zeroed"
5. Reading incorrectly
6. Recording incorrectly

Recumbent length:
1. Incorrect age for instrument (e.g.: child under 2 years measured standing)
2. Shoes and hats not removed
3. Head not in straight line with rest of body (e.g., bent or tilted to one side)
4. Top of head not placed firmly against fixed headboard end of board
5. Body arched and not properly aligned
6. Frankfort plane not positioned correctly
7. Knees bent
8. Feet not parallel to movable board
9. Board not firmly against heels
10. Board not on flat surface
11. Both knees not straightened only one leg held while measurement done

Height:
1. Incorrect age (child less than 2 years) for instrument
2. Footwear or headwear not removed
3. Feet not straight or flat on floor
4. Knees bent
5. Stool not used when measurer is same height or shorter than the participant
6. Frankfort plane is not parallel to the floor
7. Shoulders not straight
8. Head not in straight line with body
9. Headboard not placed firmly on crown of head

Weight:
1. Outer clothing not removed
2. Child measured with wet diaper
3. Scale not adjusted to zero before weighing
4. Child is anxious and moving around a lot on scale
5. Equipment needs calibration with standard weights.
31. State two reasons why an inaccurate height measurement might be recorded.

1)_________________________________________________________

_________________________________________________________

2)_________________________________________________________

_________________________________________________________

32. State two reasons why an inaccurate weight measurement might be recorded.

1)_________________________________________________________

_________________________________________________________

2)_________________________________________________________

_________________________________________________________

**Now, check your answers against the Answer Key at the end of this module.**

Locate the anthropometric equipment used in your clinic. Does it meet the criteria noted in this section? Is it in good working condition? Take notice of the increments on each measuring and weighing tool. Also see page 75 “Equipment Checklists” for detailed lists of required features of equipment.