Informal measures of length

During our lives we often need to make rough estimates about certain lengths because we don’t have any measuring tools with us at the time. For example, have you ever made an estimate of distance just by pacing it out? A pace is one example of an informal measure of length.

LITERACY TASK • Find the meanings of these key terms:

1. measure: ...........................................................................................................................................................
2. unit: .................................................................................................................................................................
3. formal: ............................................................................................................................................................
4. informal: ..........................................................................................................................................................
5. estimate: ...........................................................................................................................................................

In this investigation we are going to compare formal and informal units of length.

A. SPAN

A span is the width of a fully spread hand.

1. Using your own hand, measure the end points of one span on a sheet of paper.
2. Use your ruler to measure the exact length of this span and correct it to the nearest centimetre.
3. Now use your hand span to measure the following things in your classroom:
   (a) The length and width of your desk.
   (b) The length of the teacher’s desk.
   (c) The width of the doorway.
4. Use the conversion measure that you calculated in step 2 to estimate these lengths in centimetres.
5. Measure the length of these objects with a ruler to see how accurate your estimates were.
6. When using informal units such as spans, it’s important that your hand span is always the same to maintain accuracy. Mark a length of 5 spans on the blackboard and then measure it with a ruler.
7. Erase the markings and five minutes later repeat the task. Are your 5 spans the same length? If not, you need to rehearse this task to find a comfortable span size that you will use each time.
8. Use your span to estimate a length of 1 metre. How accurate was your measurement?
B. CUBIT
A cubit is the length of a bent arm from the elbow to the tips of your fingers.
1. Using your own forearm, measure the end points of one cubit on a sheet of paper.
2. Use your ruler to measure the exact length of this cubit and correct it to the nearest centimetre.
3. Now use your cubit to measure the following things in your classroom:
   (a) The length of the blackboard.
   (b) The height of another person.
   (c) The width of the doorway.
4. Use the conversion measure that you calculated in step 2 to estimate these lengths in centimetres.
5. Measure the length of these objects with a ruler to see how accurate your estimates were.
6. Was your measure of the doorway more accurate using spans or cubits?
7. Mark a length of 5 cubits on the blackboard and then measure it with a ruler.
8. Erase the markings and five minutes later repeat the task. Are your 5 cubits the same length? If not, you need to rehearse this task so that every time you measure in cubits, the lengths are approximately the same.
9. Use your cubit to estimate a length of 3 metres. How accurate is your measurement?

C. PACE
A pace is the length of one step. Many people think of one pace as being approximately one metre in length.
1. Step out one pace and mark the end points on the ground.
2. Use your ruler to measure the exact length of this pace and correct it to the nearest centimetre.
3. Now use your pace to measure the following things:
   (a) The length of the classroom.
   (b) The length of the nearest corridor.
   (c) The length of the football oval.
4. Use the conversion measure that you calculated in step 2 to estimate these lengths in metres.
5. Measure the length of these objects with a trundle wheel to see how accurate your estimates were.
6. From a point in the centre of a field, mark a distance of 10 paces in opposite directions.
7. Are your 10 pace measurements the same length? If not, you need to rehearse this task so that every time you measure in paces, the lengths are approximately the same.
8. Use your pace to estimate a distance of 20 metres. How accurate was your estimate?