

# The Best Bug

A book about non-standard units of length



## Aim

*The Best Bug* introduces the use of non-standard units to measure and compare the lengths of different objects.

Students will also begin to evaluate the suitability of different non-standard unit to measure length in different situations.

These whole-class activities provide students with the opportunity to:

- listen to a story about non-standard units of measure
- use materials to act out the story
- use the *Teaching Tool* to act out the story
- measure objects using non-standard units of measure
- predict the length of an object using non-standard units of measure
- compare the lengths of objects using non-standard units of measure
- evaluate the suitability of different non-standard units of measure

## Activities

1. Listening to the story
2. Using materials to act out the story
3. Using the teaching tool to act out the story 
4. Using non-standard units of measure
5. Using other non-standard units of measure
6. Predicting length using non-standard units of measure
7. Predicting length using other non-standard units of measure 
8. Comparing different non-standard units of measure 
9. Evaluating different non-standard units of measure

# 1. Listening to the story

## Resources

- *The Best Bug*

## Activity

Show the cover of *The Best Bug* to the students and read the title aloud. Encourage volunteers to predict what they think the story might be about. Slowly read the story and discuss each of the pictures. Ask, **What bugs do you see? What numbers do you see? How are the bugs measuring the length of each throw?** After reading the story ask, **What happened in the story? What did you see?** Encourage students to explain that ants were used to measure the distance of each throw. Make sure that students observe that there is no gap between the ants and that the ants were aligned in a straight line. Read the story again and discuss each of the double-page pictures. Have the students count the ants to make sure that the number recorded in the scoreboard on the next page matches. Ask students to rank the competitors by the length of their throw.

# 2. Using materials to act out the story

## Resources

- Support 1 – see attached
- Scissors
- *The Best Bug*

## Preparation

Print a copy of Support 1 for each student.

## Activity

Give each student a sheet of ants and scissors and have them cut out the ant cards. Ask, **What do you notice about these ants?** Bring out that they are all the same length. Then read pages 2–7 of *The Best Bug*. Ask, **How did the bugs measure the length of Billy's throw?** Have each student recreate the scene by lining up the matching number of ants. Ensure that there is no gap between the ants and that the ants are not overlapping. Discuss the reasons for this. Demonstrate how the distance would change. Ask, **How far did Billy throw the ball?** Repeat for the remaining pages of *The Best Bug*.

Retain the ant cards for Activity 4.



### 3. Using the teaching tool to act out the story



#### Resources

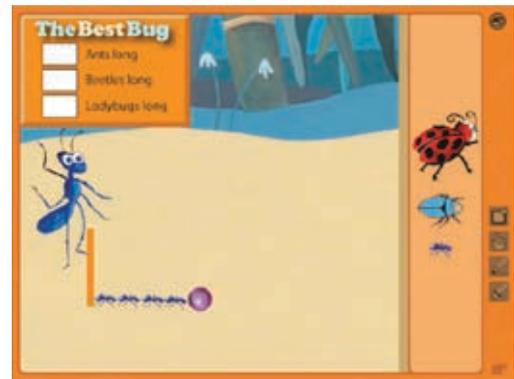
- *Teaching Tool*
- *The Best Bug*

#### Activity

Ensure that all the students can see the *Teaching Tool*. Read pages 5–6 of *The Best Bug*.

Ask, **How far did Billy throw the ball? How do you know?** Have the students count the number of ants within the ant trail to provide the answer. Next, select a student to model

the scenario on the *Teaching Tool*. Have the student drag the ball and place it in the work area at a distance that they think is close to four ants long. Then have them drag four ants in the work area, positioning them nose to tail in a line to the ball. Have the student re-position the ball if it proves to be too close or too far away. Repeat for the remaining pages of *The Best Bug*.



### 4. Using non-standard units of measure

#### Resources

- Ant cards from Activity 2
- Sticky tape

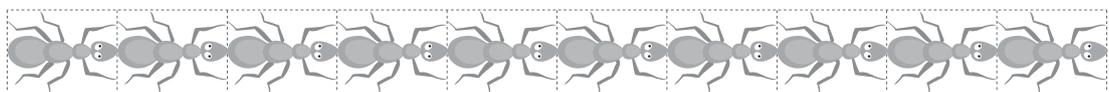
#### Preparation

If the ant cards from Activity 2 are not available, print a copy of Support 1 for each student and have them cut out the cards.

#### Activity

Remind the students that the ants used to measure the length of each throw in *The Best Bug* did not overlap and that they formed a straight line. Guide the students to tape their ant cards together to make an ant trail. Demonstrate how to use the ant trail to measure the handspan, arm length, and height of a volunteer. Then ask students to work in groups to measure and write each student's handspans, arm lengths, and heights. Multiple ant trails will be needed to measure arm length and height. Discuss and confirm some results. Encourage students to compare their measurements with those of their classmates. Ask questions such as, **Who has the widest handspan in your group? How much longer is your arm than your friend's arm? How will we find the shortest student?**

Retain the ant trails for Activity 6.



## 5. Using other non-standard units of measure

### Resources

- Playdough
- Paperclips

### Preparation

Each student will need some playdough and 20 to 30 paperclips.

### Activity

Have the students roll their playdough into a “snake” then use paperclips to measure its length. Remind the students that the paperclips must be in a straight line and not overlap. Record each snake length on the board. Discuss the results, asking several students questions such as, **How long is your snake? Who has a snake that is shorter than yours? Who has a snake that is longer than yours? How much longer is the longest snake?**

## 6. Predicting length using non-standard units of measure

### Resources

- Ant trails from Activity 4

### Preparation

If the ant trails from Activity 4 are not available, print a copy of Support 1 for each student. Have them cut out the cards and stick them together to make an ant trail.

### Activity

Have the students work in groups to identify and record the names of classroom objects that are one ant long, two ants long, three ants long, and so on up to twenty ants long. Afterward, ask each student to say the name of one object and how many ants it measured. Ask questions such as, **Did anyone find the same object for this length? Who found a different object?** Use an ant trail to re-measure any lengths that seem incorrect.



## 7. Predicting length using different units of non-standard measure



### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. Drag the ball onto the work area. Have the students predict the distance from the bug to the ball. Ask, **How many ants long is this throw? How do you know?** Select a one or two students to test differing predictions. As each student begins to drag ants onto the work area, encourage the remaining students to discuss the accuracy of their predictions. Ask, **Who thinks that eight ants will be too many? Who thinks that two ants will not be enough?** After the students have tested their predictions and confirmed the length, write the number of ants on the scoreboard in the top left corner of the screen. Repeat for several different throws.



## 8. Comparing different units of non-standard measure

### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. Drag the ball onto the work area. Have the students predict the distance from the bug to the ball. Ask, **How many ants long is this throw? How do you know?** Select one student to test their prediction on the *Teaching Tool*. Write the length of the throw on the scoreboard. Repeat the activity to figure out how many beetles and how many ladybugs are needed to measure the same throw. For example:

Afterward, discuss the results on the scoreboard. Ask, **How many more beetles than ants did we need to measure the throw?** Bring out the fact that double the number of ants was needed because the ants are half the size of the beetles. Ask, **How many more ladybugs than ants did we need to measure the throw?** Bring out the fact that three times the number of ants was needed because one ladybug is the same length as three ants. Challenge the students to figure out how many more beetles than ladybugs were needed to measure the throw and discuss the relationship between their lengths (one beetle equals two-thirds of one ladybug).



## 9. Evaluating different units of non-standard measure

### Resources

- *The Best Bug*
- Small beanbags
- 3 long lengths of rope
- 3 skipping ropes
- 3 men's ties

### Preparation

Each group of students will need a small beanbag and one length of rope, skipping rope, or a tie.

### Activity

Read *The Best Bug*. Show the beanbag to the students and ask, **If Chloe threw this beanbag, could we use ants to measure the distance of her throw?** Discuss how it would be very difficult to count a large number of ants accurately or quickly. Ask, **What might be more suitable?** (Something longer.) Discuss various other non-standard units of measure that could be used such as a long rope, a skipping rope, or a tie. Give one of these measures to each group of students. Have one student in each group throw a beanbag in an open area. The students then work together to measure and record the distance with their non-standard unit. When the students return to the classroom, discuss their results and the suitability of the unit of non-standard measure they used.



# Ants

