How Many Legs?

A book about number combinations

Aim

How Many Legs? provides a context for exploring different combinations of numbers to match a total.

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

- listen to a story about quantities
- combine and partition numbers
- identify properties of numbers
- say and read sentences about addition and subtraction

Activities

1. Listening to the story
2. Using pictures to act out the story
3. Using the teaching tool to act out the story
4. Counting in steps of two
5. Exploring combinations – legs
6. Exploring combinations – legs and heads
7. Identifying doubles
8. Exploring odd and even numbers
9. Exploring addition
10. Exploring subtraction

I. Listening to the story

Resources

- *How Many Legs?*

Activity

Show the cover of *How Many Legs?* and read the title aloud. Encourage volunteers to predict what they think the story might be about. Read the story without discussion. Read the story again and ask, **What is happening in the story? What do you see in each picture?** Encourage students to explain that each picture shows animals either by themselves or with other animals. Also, that all the animals have one head but some animals have two legs and others have four or more legs. Read page 2 and have the students identify the number of legs and heads that are on that single page. Repeat with the other pages, drawing students' attention to all the animals that appear on double-page spreads. Point out that the number of animals is the same as the number of heads (there are no animals without a head and no animals with more than one head). Briefly discuss the questions posed on pages 14–15 and 16–17: these ideas are explored further in activities below.

2. Using pictures to act out the story

Resources

- *How Many Legs?*
- Support 1 (see attached)
- Scissors

Preparation

Make a copy of Support 1 for each student.

Activity

Move the students into pairs and distribute the materials. Direct the students to cut out each picture and write their initials on the back. Read page 2 of the storybook. Direct the students to find the matching picture from their collection and count the number of legs and heads. Repeat with the other pages up to page 13.

Retain the pictures for use in other activities.

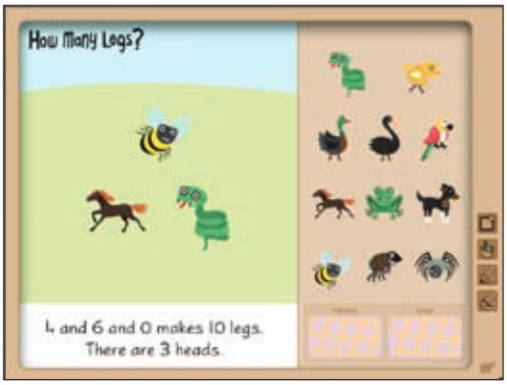
3. Using the teaching tool to act out the story

Resources

- *How Many Legs?*
- *Teaching Tool*

Activity

Make sure all the students can see the *Teaching Tool*. Read page 2 of the storybook. Say, **All the animals in this book have one head. How many legs does the parrot have? What other animal can you see on the *Teaching Tool* that has two legs?** Repeat with the other pages in the book. For the pages that have two or more animals, click and drag characters onto the work area to help students identify the total number of heads and legs. As students identify the quantities, write the number of legs and heads in the white panel at the bottom of the screen. If the students are ready, use the addition and equality symbols in the sentences.



4. Counting in steps of two

Resources

- Animal pictures from Activity 2

Preparation

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

Activity

Have the students sit in a circle holding one of their bird pictures. Say, **I wonder how many animal legs we have around the circle. Let's count by two and see how far we go.** Select a student to start by holding up their bird picture and saying *"two"*. The student next to them then holds up their card and says *"four"* and so on around the circle until everyone has had a turn. Identify the total number of animal legs then select a student to start to count back by two from the total. As students say the next number they should put their bird picture down. To extend the activity, show a picture of an animal that has more than two legs and begin the count from that number, continuing to use the students' bird cards. Alternatively, show a spider card, cover one of the legs and say, **My poor spider has lost a leg so it only has seven legs now. Let's keep counting in twos from seven and see how many animal legs we have in total.**

5. Exploring combinations – legs

Resources

- Animal pictures from Activity 2
- *Teaching Tool*

Preparation

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

Activity

Make sure all the students can see the *Teaching Tool*. Move the students into pairs and distribute the picture cards. Say, **Look at the picture cards that you and your partner have. What animals will give us a total of eight legs?** As students describe the possibilities, demonstrate the combinations using the *Teaching Tool*. Write the names of the animals in a central location and encourage the students to write the combinations of animals as they find them. Repeat with 10 legs and then 12 legs. To extend the activity, move the students into groups of four and continue with even numbers of legs up to 24.

6. Exploring combinations – legs and heads

Resources

- Animal pictures from Activity 2
- *Teaching Tool*

Preparation

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

Activity

Make sure all the students can see the *Teaching Tool*. Move the students into pairs and distribute the picture cards. Say, **Look at the picture cards that you and your partner have. Choose just two animals so that you have a total of two heads and eight legs?** As students describe the possibilities demonstrate the combinations using the *Teaching Tool*. Ask, **Can you have eight legs and three heads? Can you have eight legs and four heads?** Write the names of the animals in a central location and encourage the students to write the combinations of animals as they find them. Then ask, **Can you have eight legs and five heads?** If necessary, point out that one animal has a head but no legs (the snake) so one possibility is two ducks, two chickens, and a snake. Display the *Teaching Tool* and click on the Heads card and Legs card to show a combination for the students to work with. Call on students to click and drag animals to show matching combinations of animals. To extend the activity, move the students into groups of four and continue with even numbers of legs up to 24 and at least three heads.

7. Identifying doubles

Resources

- Animal pictures from Activity 2
- *How Many Legs?*

Preparation

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

Activity

Discuss what the students know about doubles. Move the students into pairs and distribute the picture cards. Say, **Choose three of your animal pictures. Look for all the doubles you can find in those pictures. Talk to your partner about what you find.** After a few minutes, invite individuals to describe what they found. For example, on the bee picture students may notice that the wings are double one, the stripes on the body are double two and the legs are double three.

8. Exploring odd and even numbers

Resources

- Animal pictures from Activity 2
- Counters

Preparation

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

Activity

Review what the students know about odd and even numbers. If necessary, point out that when even numbers of things are split into two equal groups, each item has a partner. In comparison, splitting odd numbers into two equal groups will result in one item left over without a partner. Illustrate these ideas with odd and even numbers of students standing in two rows, holding hands to make pairs. Direct each student to choose three animals (excluding the snake) and write the total number of legs. Say, **Collect counters to match the number of legs your animal has. Now split them into two rows. Does every counter have a partner?** Point out that all totals are even numbers. Ask, **Why are the totals not odd numbers?** Encourage the students to consider how each animal has an even number of legs so when the legs of any animals are added together there cannot be any spare legs left over.

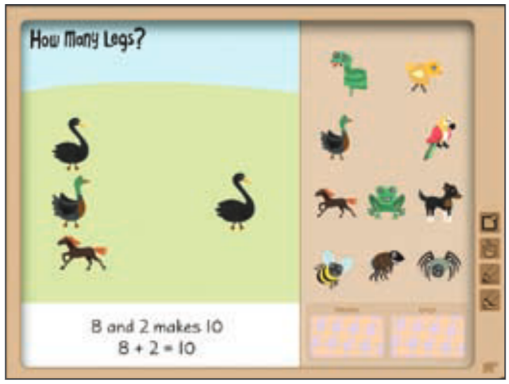
9. Exploring addition

Resources

- *Teaching Tool*

Activity

Make sure all the students can see the *Teaching Tool*. Click and drag a horse, a swan, and a chick onto the left side of the work area. Say, **These three animals are having a picnic. How many legs are there? Imagine one more chick joins these animals. How many legs will there be? Can you figure it out quickly?** Encourage the students to count on 2 from the previous total of 8, rather than counting each leg on each animal again. Click and drag a chick onto the right side of the work area and confirm the total of ten legs. Clear the work area then repeat with other combinations of animals, adding an extra animal with two legs each time. In the white panel at the bottom of the screen write sentences to describe the addition. If the students are ready, use the addition and equality symbols in the sentences. To extend the activity, make the extra animal one with four legs or two animals with two legs each.



10. Exploring subtraction

Resources

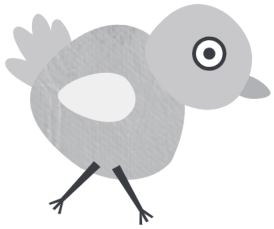
- *Teaching Tool*

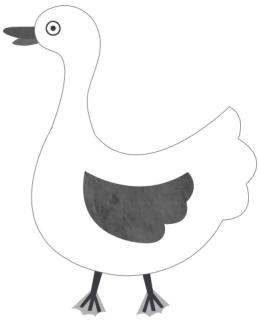
Activity

Make sure all the students can see the *Teaching Tool*. Click and drag a frog, a chick, and a drake onto the left side of the work area. Say, **These three animals are having a picnic. How many legs are there? Imagine that the drake leaves. How many legs will be left at the picnic? Can you work it out quickly?** Encourage the students to count back 2 from the previous total of 8, rather than counting each leg on each remaining animal again. Click and drag the drake off the work area and confirm the total of six legs remaining. Clear the work area then repeat with other combinations of animals, ensuring that one of them has two legs. In the white panel at the bottom of the screen, write sentences to describe the subtraction. If the students are ready, use the subtraction and equality symbols in the sentences. To extend the activity, make the animal that leaves have four legs or two animals with two legs each.

Animals

Support I





Animals (continued)

Support I