

Ladybug Life Cycle

Time: 30 minutes

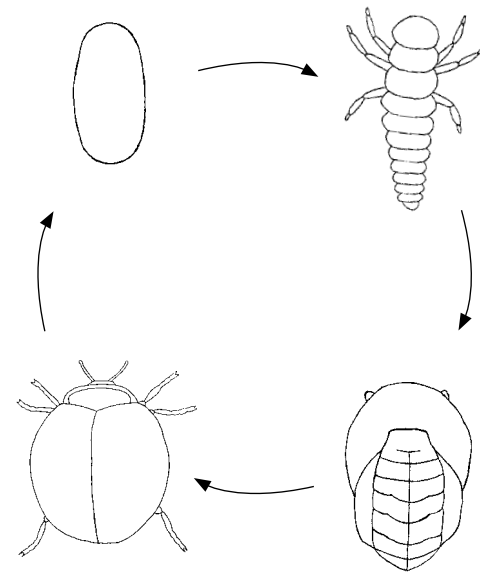
Materials: ladybug poster; and for each student a copy of the handout on page T5, piece of paper, tape or glue, scissors.

Background

- The ladybug life cycle is a complete metamorphosis.
- There are four stages: egg, larva, pupa and adult. See the back of the poster for a detailed description.
- The life cycle is a continuous circle. An adult mother lays eggs. Eggs become larvae. Larvae become pupas. Pupas become adults. Adults (mothers) lay eggs. Et cetera.

Use the pictures and information on the poster to explain the ladybug life cycle. Write the names of each stage on your whiteboard.

Color and cut out the pictures on the handout. Arrange them on the paper in a circle that shows the order of the ladybug life cycle. Glue or tape them in place.



Volume K-1

Ladybug Gazette

TEACHER'S GUIDE



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Gazette Activities

The Ladybug Gazette is a four-page mini-workbook with three activities. Activities are designed to prepare students for close observation of live ladybugs. Students will count, add, match colors and look closely to find small differences.

You will need your whiteboard, multiple copies of reproducibles, black and red crayons, pencils.

The purpose of the Ladybug Gazette and related hands-on activities is to build important science skills: observation, quantification, graphing, categorizing and reporting.

Science and Math Standards

NRC National Science Education Standards: characteristics of organisms and life cycles of organisms

McREL Standards and Benchmarks (www.mcrel.org)

Nature of Scientific Inquiry

- Uses the senses to make observations about living things
- Records information collected about living things
- Conducts a simple investigation to answer a question
- Asks questions about observations
- Knows that learning can come from careful observations

Life Science

- Differences exist among individuals of the same kind of animal

Mathematics: Properties of Concepts of Numbers

- Understands that numbers are symbols used to represent quantities or attributes of real-world objects
- Counts whole numbers

- Understands symbolic, concrete, and pictorial representations of numbers
- Understands basic whole number relationships (less than, more than)

Mathematical Computation

- Adds

Geometry

- Understands the common language of spatial sense (left, right, top, bottom)
- Understands that geometric shapes are useful for representing and describing real world situations

Basic Concepts of Data Analysis

- Collects information about objects in simple graphs
- Understands that one can find out about a group of things by studying a few of them

Algebra

- Recognizes regularities
- Extends simple patterns (numbers)

Count Spots and Add

Time: 20-30 minutes

Background

- Ladybugs all look about the same, but they come in different sizes and colors and have different numbers of spots.
- Some have no spots; some have only two; and some have sixteen spots.

Gazette pages 2-3 show nine ladybugs; each is missing spots and color on one of its wing covers.

First, count the number of spots on each of the ladybugs. Next, draw the same number of spots and color the other wing cover to match. Finally, add up the number of spots on each ladybug and write the total in the box next to the picture.

Answers: Counter-clockwise from upper left corner, 2, 6, 4, 8, 6, 4, 8, 12, 10.

Ladybug Symmetry

Time: 20-30 minutes

A ladybug is a kind of insect. Like all other insects it has six legs and a head, thorax and abdomen. It also has wings, wing covers, antennas and eyes.

Vocabulary note: The black-spotted, orange parts of the ladybug's body are not wings. They are wing covers. They are hard, and they protect tiny, fragile, black wings. Sometimes you can see the black wings peeking out from under the wing covers.

Background

- Most animals have bodies with four sides: left and right, top and bottom (or front and back).
- Ladybugs have symmetrical bodies. The two sides of the top are the same and the two sides of the bottom are the same.
- All ladybugs have two wing covers, and these are always the same color with the same number of spots.
- People have symmetrical bodies, too. The two sides of our fronts are the same, and the two sides of our backs are the same.

Look at photographs of ladybugs online and write the ladybug body parts on your white board.

Ladybugs have a left and right side. Ladybugs do not have hands and feet. Instead, at the ends of their legs are hooks that help them grab and climb. Ladybugs also don't have noses, ears or teeth. They do have a sharp jaw, called a mandible, that they use to chew food.

The picture of the ladybug on gazette page 1 shows how many antennas, legs and spots it has on the left side. Count the same parts on the right side of the ladybug. Write the numbers on the lines. Are they the same as the numbers on the left side? Yes, because ladybugs are symmetrical, the same on the left and the right.

Extra: Copy and handout the Ladybug Coloring Page (page T6). Students should add some spots and color the ladybug. Remind them to make their ladybugs symmetrical by adding the same number of spots to each wing cover.

Answers: Top to bottom, 1, 3, 4.

Challenge

Time: 15-20 minutes

On gazette page 4, there are lots of ladybugs. What color are they? How many legs do they have? How many spots do they have? Three ladybugs are not like the rest. Circle the one that is a different color, the one that has fewer legs, and the one that has fewer spots. Extra challenge: Count all the ladybugs and write the number on the top of the page.

Suggestion: Use a prize to motivate students. Allow the "winner" to take home the ladybug poster or your ladybug habitat (at the end of your ladybug activities). If several students find all the answers, draw for a winner.

Answers: To the lower right of the (1) yellow ladybug, you will find (2) a ladybug with 5 legs; count up three from this one and you'll find (3) a ladybug with only 1 spot.

Hands-On Activities with Live Ladybugs

Time: 20 minutes for prep

20 minutes for each handout: "Look at a Ladybug" (T3) and "Count Spots" (T4)

15 minutes for finishing up

30 minutes for the extra comparing and graphing

Materials for each student

Zipper snack or sandwich bag, 1 live ladybug, copies of the handouts, pencil, crayons, scissors, and OPTIONAL magnifying glass.

For extra comparing and graphing you will need your whiteboard and a giant piece of kraft paper.

Preparation

- Place a ladybug in each bag and zip closed. You may want to do this outside because some ladybugs may escape. Ladybugs can live in bags for a couple of hours.
- As you pass out bags and handouts, open each bag for a second to ventilate.

Look at a Ladybug

What do you really see when you look at a ladybug? There are no noses. You can't see eyes without magnifiers. It's good to say what you really can't see. What you can see if you look closely are wing covers, wings, legs, spots and colors. Answer each question by filling in the circle (coloring it) with a pencil.

Count Spots

Look closely at the spots on the lady bug. Draw spots on the picture to match the live ladybug in the bag. This is hard! Take your time and look closely. Next, count the spots you drew on the picture and put the number in the square at the top of the page.

Finishing Up

- Collect bags and either return ladybugs to your habitat or let them go outside.
- Collect bags and save for other ladybug activities.
- Optional: At recess, go outside as a class and allow each student to release her/his ladybug.

Encourage ladybugs to crawl on fingers, and then blow them away. Can you see the wings?

- If ladybugs won't fly, gently set them on a plant or on the ground.
- Sing, "So long, it's been good to know you" (just the line if you don't know the whole song).
- Say a poem, "Ladybug, ladybug, on the tree / Fly down here and sit with me / Rest on my hand, I'll count your spots / 2,4,6,8 polka dots!"

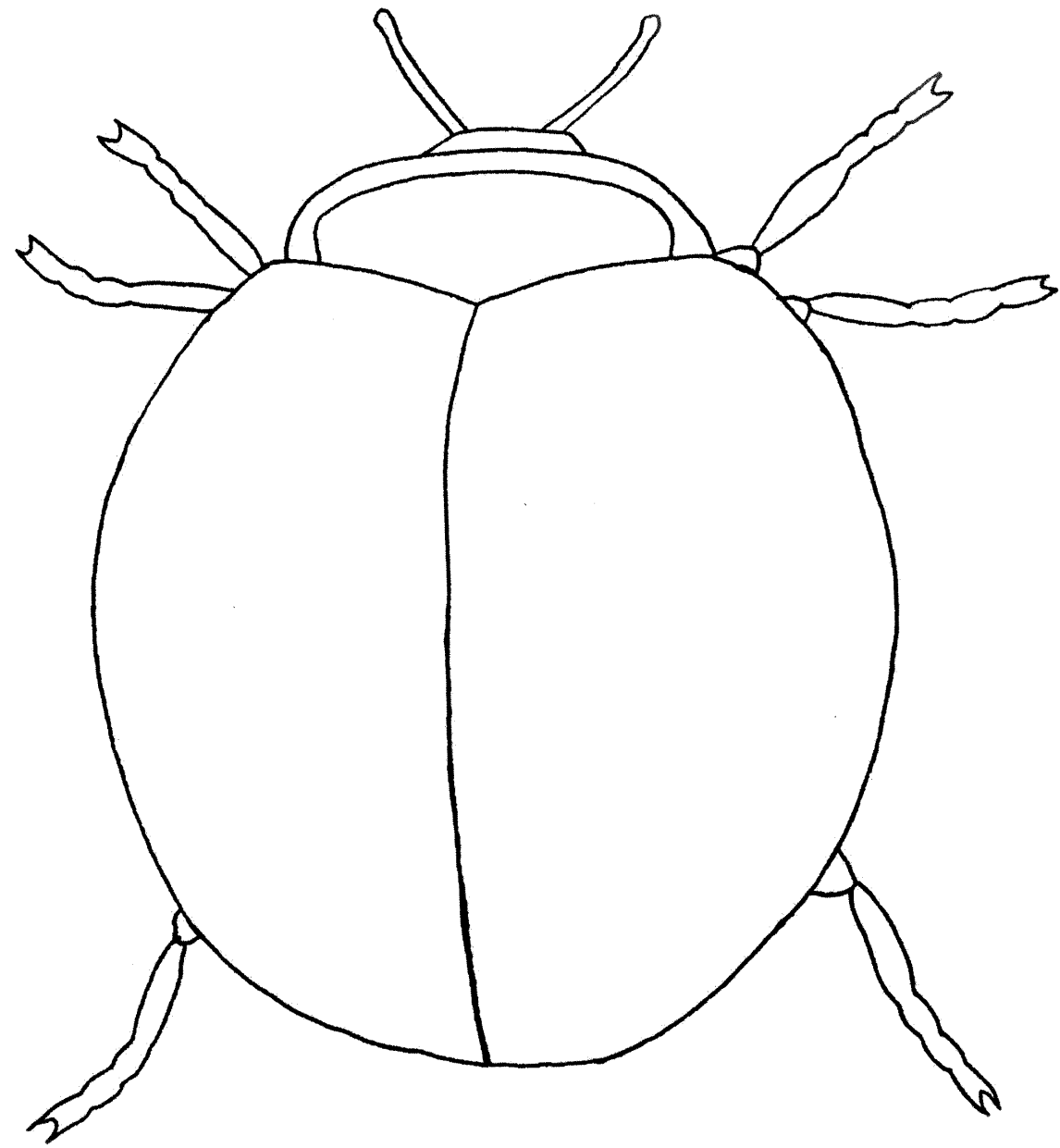
Extra: Compare your answers. When everyone has finished counting, put all the numbers on your whiteboard. Are the numbers the same or different? Do all of your ladybugs have the same number of spots?

Extra: Make a graph. Prepare a big sheet of kraft paper by drawing an x and a y axis. Title the graph: "Ladybug Spots." Ask students to cut out the ladybug on "Count Spots" by cutting along the dotted line. Collect pictures and sort them by number. Stack all the squares with the same numbers in columns and paste or tape them to your graph.



Answers for "Look at a Ladybug," based on what one would expect to see. 1. Yes 2. 6 3. Black 4. No 5. Yes 6. Black 7. No 8. Yes 9. Orange or Red 10. Yes

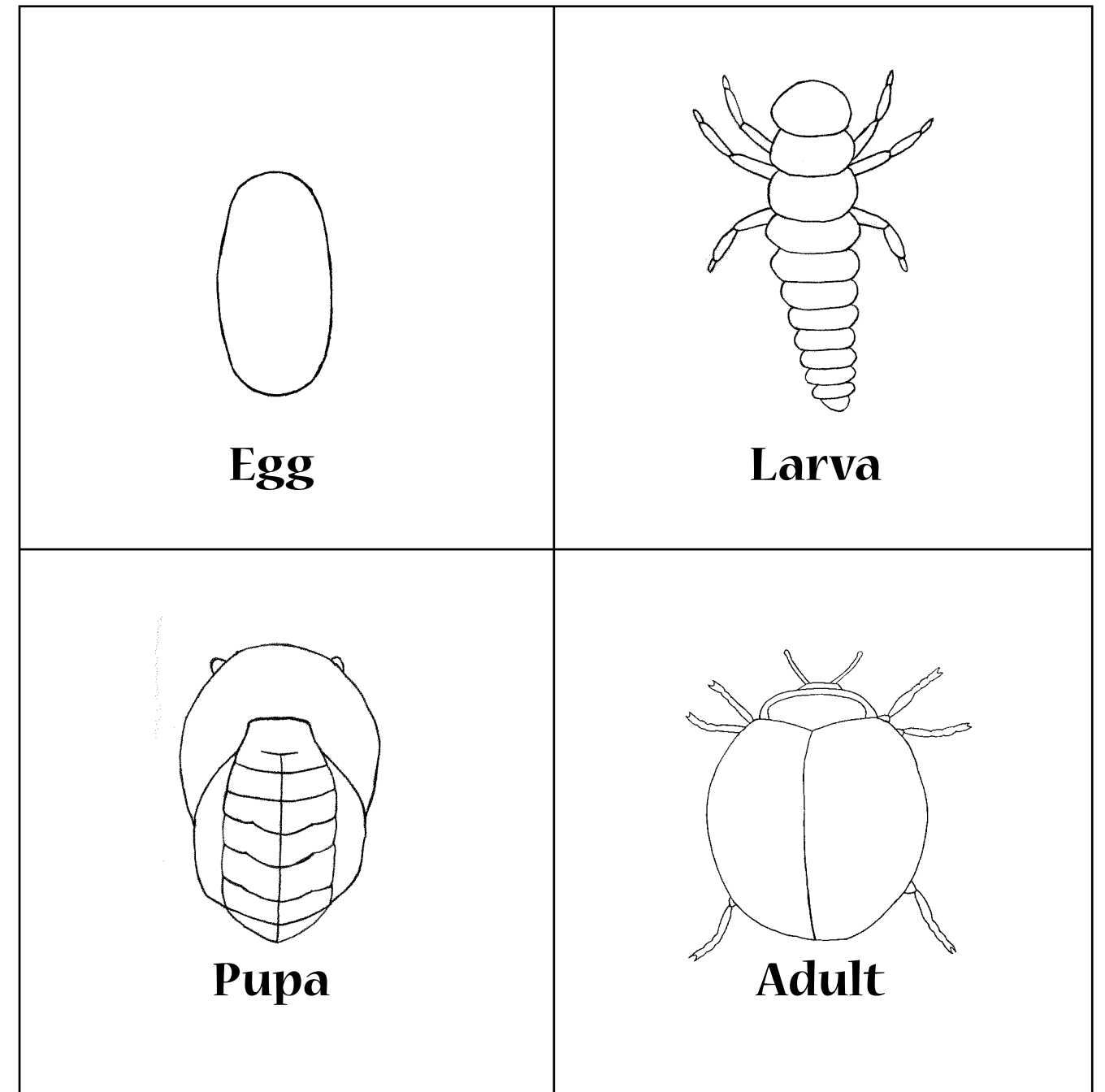
Count Spots



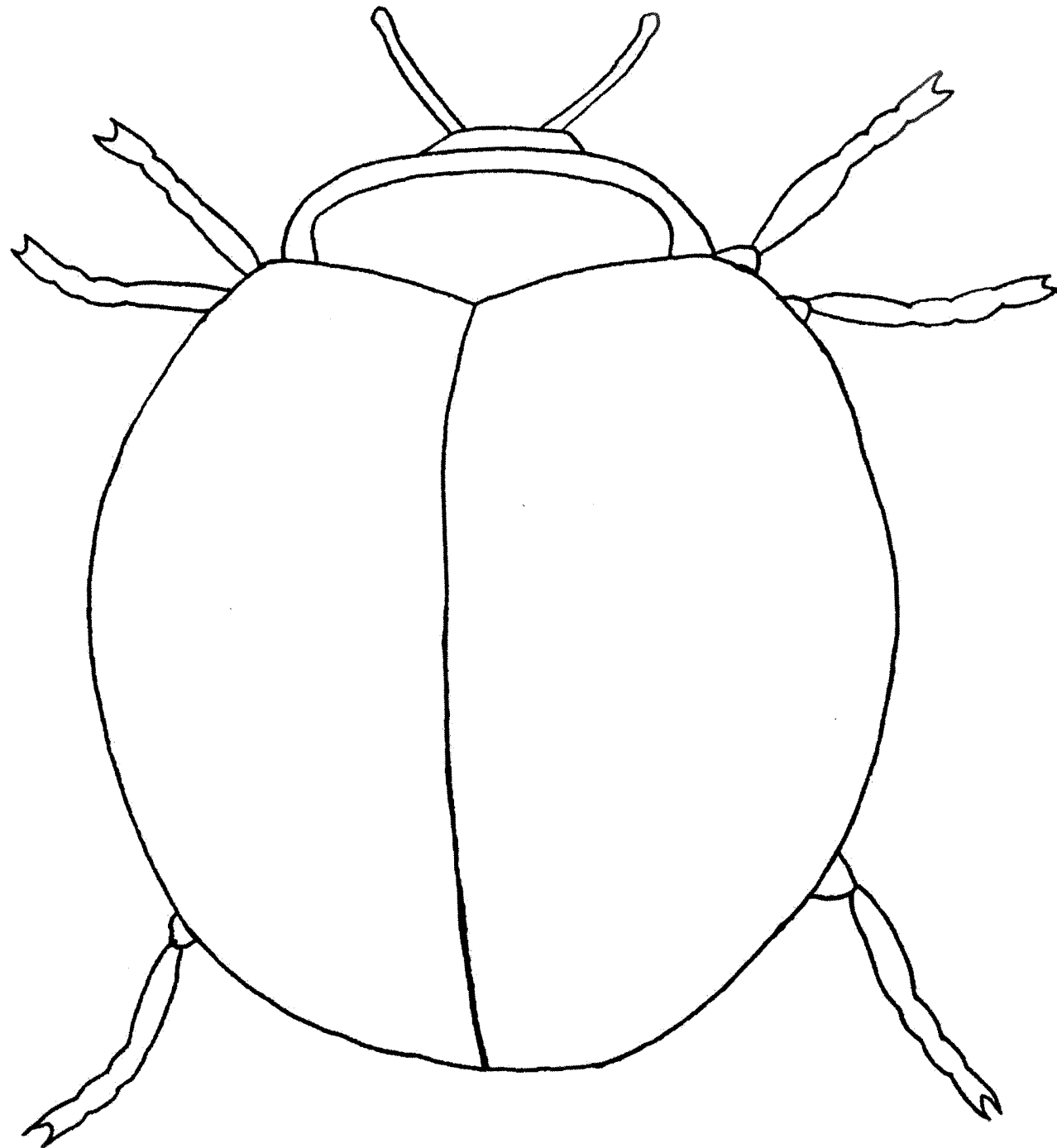
Number of spots _____

Name _____

Ladybug Life Cycle



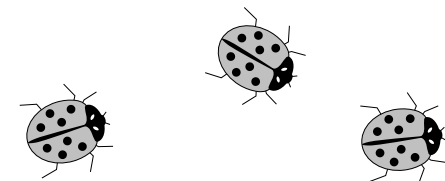
Ladybug



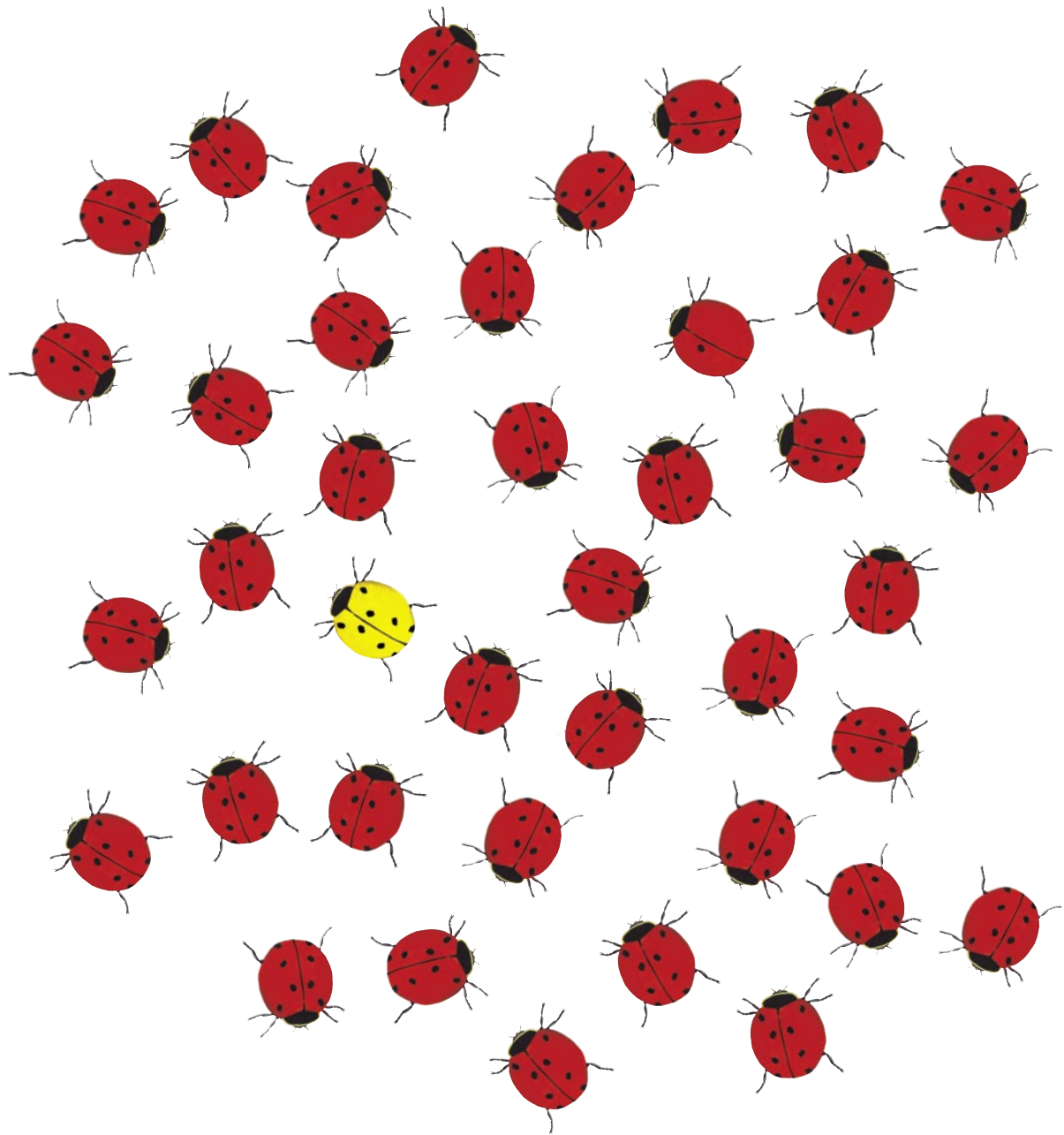
Look at a Ladybug

What do you see when you look closely?

1. Do you see legs? Yes No
2. How many legs do you see? _____
3. What color are the legs? _____
4. Do you see hands? Yes No
5. Do you see spots? Yes No
6. What color are the spots? _____
7. Do you see a nose? Yes No
8. Do you see wing covers? Yes No
9. What color are the wing covers? _____
10. Do you see wings? Yes No



Challenge



Find the three ladybugs that are not the same.

Ladybugs



Symmetry

Ladybugs are the same on the right side and the left side.

1 Antenna

___ Antenna

3 Legs

___ Legs

4 Spots

___ Spots

left

right



Name _____

Add Spots and Count

