

# LESSON 3

## Objective

Identify even and odd number patterns.

## Common Core State Standards

- **2.OA.3** Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

## Operations and Algebraic Thinking

# Even and Odd Number Patterns

Children at this stage have learned to identify some attributes of numbers—such as whether they are greater or less than another number—as well as attributes of geometric shapes. Here, children learn to identify a new attribute of a number: whether it is *odd* or *even*. Learning to recognize odd and even number patterns prepares children for later development of more complex algebraic and geometric concepts.

**Try It!** Perform the Try It! activity on the next page.

## Talk About It

Discuss the Try It! activity.

- Have children look at their completed Hundred Charts (BLM 2). **Ask:** Which numbers from 1 to 10 are odd numbers? Which are even numbers?
- **Say:** Look at the even numbers on the Hundred Chart. **Ask:** Which digits are in the ones place? **Say:** Now look at the odd numbers. **Ask:** Which digits are in the ones place?
- **Ask:** If a two- or three-digit number has a 0, 2, 4, 6, or an 8 in the ones place, is the number even or odd? If a two- or three-digit number has a 1, 3, 5, 7, or 9 in the ones place, is the number even or odd? What pattern can you see?

## Solve It

With children, reread the problem. **Ask:** How can Jody find out if everyone in her class will have a buddy? Ask children to write letters to Jody telling her about even and odd numbers and how she can use what she learns about them to find her answer.

## More Ideas

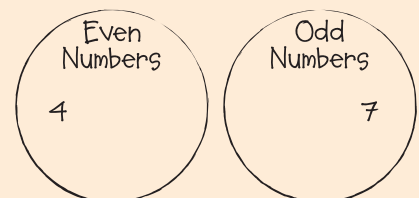
For other ways to teach about even and odd number patterns—

- Have one child pull a handful of Snap Cubes® from a bag. Another child puts the cubes in pairs. Together they determine if the number of cubes is odd or even.
- Distribute copies of Ten Frames (BLM 3) to children. Have children use Two-Color Counters to model numbers in the ten frames. Explain that if a number is even, every counter will have a partner in its row. If a number is odd, there will be one counter without a partner in its row.

## Formative Assessment

Have children try the following problem.

Place the following numbers in the sorting circles: 6, 9, 23, 38, 72, 97.



## Try It! 30 minutes | Pairs

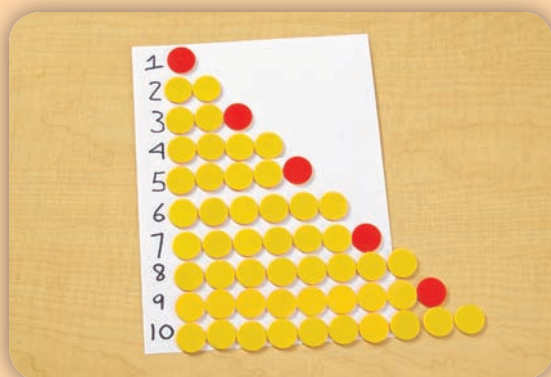
Here is a problem about even and odd number patterns.

*Jody is going to the zoo with her second-grade class. Her teacher wants to make sure that everyone has a buddy. There are 27 children in her class. How can Jody find out if every child will have a buddy?*

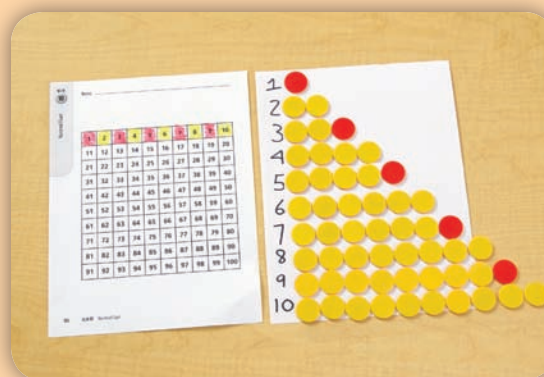
Introduce the problem. Then have children do the activity to solve the problem. Discuss the terms **even** and **odd**. **Say:** Hold up three fingers. **Ask:** Does every finger have a partner? **Say:** If every finger has a partner, the number is even. If a finger doesn't have a partner, the number is odd. Distribute Two-Color Counters, crayons, paper, and a Hundred Chart (BLM 2) to each pair.

### Materials

- Two-Color Counters (55 per pair)
- Hundred Chart (BLM 2; 1 per pair)
- paper (1 sheet per pair)
- crayons (1 yellow and 1 red per pair)



**1.** Have children write the numbers 1 through 10 on the paper, leaving space between numbers, and then model each number with counters. **Say:** Start with all the counters red-side up. Arrange the counters in pairs when you can. Tell children to flip the counters yellow-side up whenever they make a pair.



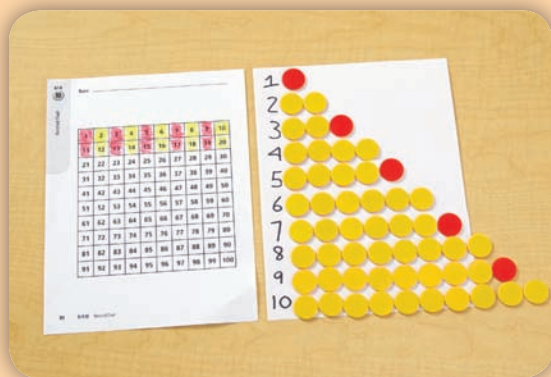
**2. Ask:** Which numbers are made up of all pairs? **Say:** Use yellow crayon to shade in these number boxes on the Hundred Chart.

**Ask:** Which numbers in your model have leftover counters that are not in pairs?

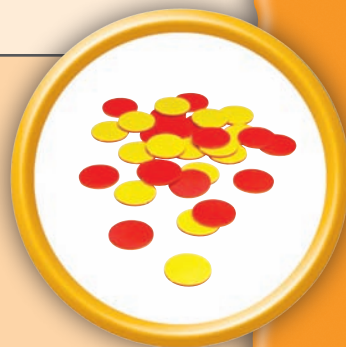
**Say:** Shade those numbers on your Hundred Chart with red crayon.

### Look Out!

Watch for children who think numbers ending in zero are neither even nor odd. Have them skip-count by 2s from 2 to 30 and note the numbers that end in zero.



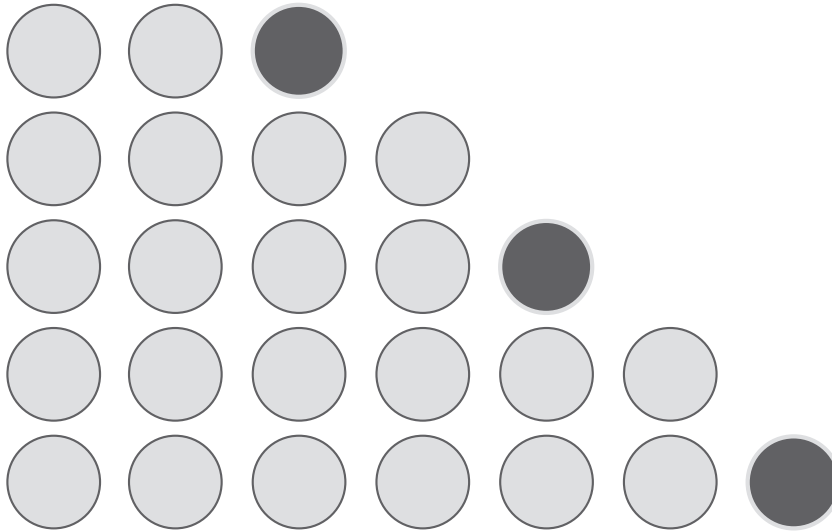
**3. Ask:** What pattern do you see on the Hundred Chart? **Say:** Use the pattern to complete the chart.



**Use Two-Color Counters. Build each number in the rows. Write the number.**

**Circle all odd numbers.** (Check students' work.)

1.



3; 4; 5; 6; 7;  
3, 5, and 7  
should be circled.

**Use Two-Color Counters. Build each number. Circle the number if it is odd.**

2. 11

Check students' models; number should be circled.

3. 14

Check students' models; number should not be circled

**For each number, write odd or even.**

4. 2 even5. 5 odd6. 19 odd7. 20 even8. 1 odd9. 13 odd

## Answer Key

**Challenge!** What digits can be in the ones place for a number to be even?

Challenge: 0, 2, 4, 6, and 8

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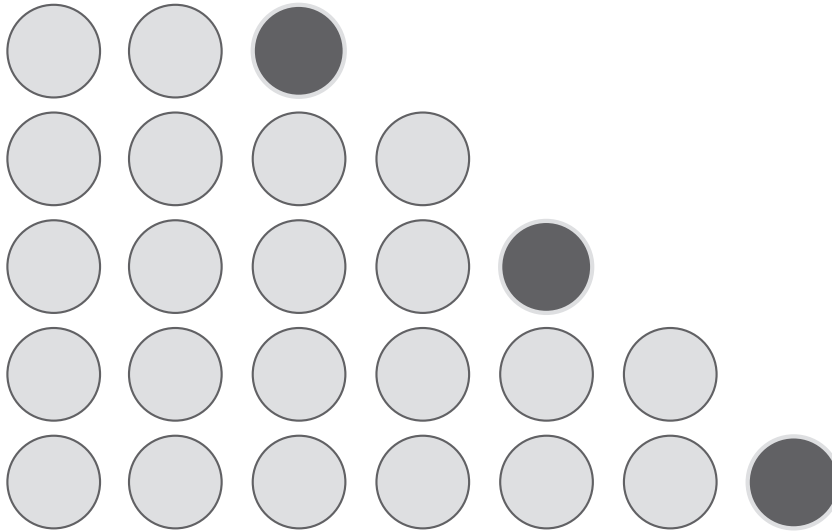
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**Use Two-Color Counters. Build each number in the rows. Write the number. Circle all odd numbers.**

1.




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**Use Two-Color Counters. Build each number. Circle the number if it is odd.**

2. 11

3. 14

**For each number, write odd or even.**

4. 2 \_\_\_\_\_

5. 5 \_\_\_\_\_

6. 19 \_\_\_\_\_

7. 20 \_\_\_\_\_

8. 1 \_\_\_\_\_

9. 13 \_\_\_\_\_

Name \_\_\_\_\_

**Challenge!** What digits can be in the ones place for a number to be even?

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Name \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100