

Even or Odd

Strand:	Number and Number Sense
Topic:	Recognizing even and odd numbers
Primary SOL:	2.NS.1 The student will utilize flexible counting strategies to determine and describe quantities up to 200. h) Represent even numbers (up to 50) with concrete objects, using two equal groups or two equal addends. i) Represent odd numbers (up to 50) with concrete objects, using two equal groups with one leftover or two equal addends plus 1. j) Determine whether a number (up to 50) is even or odd using concrete objects and justify reasoning (e.g., dividing collections of objects into two equal groups, pairing objects).

Materials

- Counters
- Large container (e.g., box, bag)
- Hundreds chart
- Blue and red pencils or crayons

Vocabulary

equal, equal groups, even, odd, pair, pattern, skip count

Student/Teacher Actions: What should students be doing? What should teachers be doing?

1. Begin by having each student grab a handful of counters from a large container. Instruct students to create as many pairs as they can with their counters. When they have finished creating pairs, have them count the total number of counters they have by skip counting the pairs by twos. Ask each student with a leftover counter to raise a hand.
2. Display a large hundreds chart. Ask the students with leftover counters to announce their total numbers of counters, and record these numbers on the displayed hundreds chart by shading them blue. Inform students that because each of these numbers had one counter left over when making pairs, each one is an “odd number.”
3. Ask each student who had no counters left over to raise a hand. Ask these students to announce their total numbers of counters, and record these numbers on the hundreds chart by shading them red. Tell students that because each of these numbers had no counters left over when making pairs, each of these numbers is an “even number.”
4. Put students into pairs and redistribute counters so that each pair has 20 counters. Give each pair two copies of a hundreds chart and blue and red pencils or crayons. Instruct partners to use their counters to determine what other numbers up to 20 are odd or even and to color the odd numbers on their hundreds charts blue and the even numbers red.

5. Ask students to describe the pattern they see on their charts. They should notice that every other number is either blue (odd) or red (even). Have students continue coloring the pattern on their charts up to the number 50.
6. Ask for volunteers to share their discoveries, and record them on the display hundreds chart. Discuss why the chart has columns in alternate colors, asking students what is the same in each of the columns (the digit in the ones place in each number). Emphasize that the digit in the ones place for each even number is zero, 2, 4, 6, or 8 and that the digit in the ones place for each odd number is 1, 3, 5, 7, or 9.
7. Write several numbers between 50 and 100 on the board, and ask students to look at the patterns and generalize whether each is odd or even, based on the pattern they have observed.

Assessment

- **Questions**
 - What characteristic do all even numbers have in common?
 - What characteristic do all odd numbers have in common?
 - How can skip counting be used to help determine whether a number is even or odd?
- **Journal/writing prompts**
 - Liam has 37 cards in his card collection. He is uncertain whether he has an even or odd number of cards. Explain to Liam how he can determine the answer.
 - Coach Diaz can invite 14 or 15 players to join her new soccer team. During practice, she plans to have her players pair up to perform different drills. Explain if Coach Diaz should invite 14 or 15 players and why.
- **Other Assessments**
 - Monitor partners as they work, and check to see that they are using their counters correctly. Assist, as needed.
 - Have students create a “One-Minute Paper,” answering the following questions on paper in one minute: “What was the most important thing you learned about even and odd numbers? What important question remains unanswered?” Be sure to clear up any remaining questions students may have.

Extensions and Connections (for all students)

- Have pairs of students play “Evens Take All.” Each pair uses a deck of cards with the face cards removed. Have students deal the decks so that each player has an equal number of cards. To play, each player draws two cards from their pile of cards and turns them face-up to create a two-digit number. The student who has an even number takes all four face-up cards, which remain face-up and out of play. If both students have an even number or if both students have an odd number, both simply keep the cards they already have. Play continues until all cards have been taken. The player with the most cards at the end is the winner.

Mathematics Instructional Plan – Grade 2

- Have students play “Popcorn.” To start, students are seated in their chairs and the teacher calls out some randomly chosen numbers. When an odd number is called, students stay seated, but when an even number is called, students “pop” up from their chairs and say “popcorn!”
- Have students write stories or create songs about even and odd numbers.
- Have students explore adding numbers together to discover the results: odd + odd = even, even + even = even, odd + even = odd, even + odd = odd.
- Have student explore subtracting numbers to discover the results: odd – odd = even, even – even = even, odd – even = odd, even – odd = odd.
- Invite students to explore even and odd generalizations beyond 50. For example: Is 138 even or odd? What connections can you make from our activities to help you plan to prove that 138 is odd or even?

Strategies for Differentiation

- Redirection and corrective feedback should be given throughout lesson.
- Use students as participants to show a visual model to represent odd and even.
- Use a variety of manipulatives for tactile learners.
- Use ten frames to align manipulatives to determine pairs and leftovers.