Grade 2 Odd & Even

2.PR.2	
Demonstrate if a number (up to 100) is even or odd.	1. Determine if a number is even or odd by using concrete materials or pictorial representations. 2. Identify even and odd numbers in a sequence, such as in a hundred chart. 3. Sort a set of numbers into even and odd.

Clarification of the outcome:

- ✦ This is the first outcome that concerns classification of numbers into categories. Odd numbers can be defined in many ways. The one that works best for grade 2 is that a number is odd if, when making partners, one person does not have a partner. A number is even, if, when making partners, each person has a partner.
- ✦ Zero is even. Why? There are two ways to look at it: (1) It is a continuation of the pattern in the sequence . . . 12, 10, 8, 6, 4, 2, __ and (2) It is a multiple of 2 because 2 x 0 = 0 and multiples of 2 are even numbers. The second way is not suitable for grade 2 students.

Required close-to-at-hand prior knowledge:

- ✤ Real counting to at least 100.
- ✤ Skip counting to 100.
- ✤ Can decode the numbers to 100 (e.g. ‘twenty-three’ are the words for ’23’)

SET SCENE stage

The problem task to present to students:

Provide students with number cards for the numbers from 1 to 10. Ask them to sort the numbers into two piles, using their own sorting rule.

Comments:

Do not guide. Let them sort any way they want.

DEVELOP stage

Activity 1: Revisits SET SCENE and addresses achievement indicators 1 and 3.

- ✦ Revisit the SET SCENE activity. Discuss why people might be interested in sorting numbers. Relate the discussion to the letters of the alphabet - vowels and consonants. Discuss the various sorting rules the students used. If any student sorted in an odd/even way, use that as the entry into activity #2. Otherwise, show students how you might have sorted the numbers from 1 to 10 (1, 3, 5 ,7, 9 and 2, 4, 6, 8).

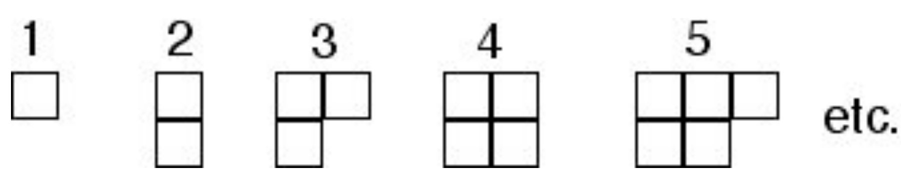
Activity 2: Addresses achievement indicators 1 and 3.

- ✦ Ask students to use unifix cubes to build the numbers, 2, 4, 6, 8, by pairing cubes. Have them put the built numbers into one pile (see example). Ask students to use unifix cubes to build the numbers, 1, 3, 5, 7, 9, by pairing cubes (one cube will be unpaired for each number). Have them put the built numbers into a second pile (see example).

- ✦ Ask students if they notice anything about the built numbers in each pile. Discuss their ideas. Ensure that they begin to understand that one pile (2, 4, 6, 8) has the numbers that always pair up and the other pile (1, 3, 5, 7, 9) has the numbers that do not pair up.

Activity 3: Addresses achievement indicators 1, 2, and 3.

- ✦ Provide number cards from 1 to 20 that show each number arranged in a pair-grid (see example). Ask students to sort the cards into two piles in the same way as the numbers from 1 to 10 were sorted. Name the pile containing 1, 3, 5, . . as the pile having odd numbers and the pile, 2, 4, 6, . . . as the pile having even numbers. Discuss why the language odd/even is appropriate.



Activity 4: Addresses achievement indicators 1, 3, and practice.

- ✦ Ask the students to build the number 7 and the number 10 by using students, where each pair of students holds hands. Ask them whether 7 is odd or even and why. Ask them whether 10 is odd or even and why.
- ✦ Repeat for the numbers 6 and 11.

Activity 5: Addresses achievement indicators 1, 2, 3, and practice.

- ✦ Ask students to skip count by 2s beginning with 1 (1, 3, 5, . . .). Ask them whether the numbers they say are odd or even and why (encourage use of manipulatives/pictures, as appropriate, to help explain).
- ✦ Ask students to skip count by 2s beginning with 2 (2, 4, 6, . . .). Ask them whether the numbers they say are odd or even and why (encourage use of manipulatives/pictures, as appropriate, to help explain).

Activity 6: Addresses achievement indicators 1, 2, 3, and practice.

- ✦ Present a 0-99 hundreds chart. Point to a specific numeral in it (e.g. 37). Ask students whether the number is odd or even and why (encourage use of manipulatives/pictures, as appropriate, to help explain). Repeat about four times.
- ✦ Provide a scrambled sequence of about six numerals where each number is less than 100 (e.g. 3, 46, 87, 19, 28, 40). Ask students to identify the odd and even numbers and to explain why they are odd or even (encourage use of manipulatives/pictures, as appropriate, to help explain).

Activity 7: Assessment of teaching

- ✦ Provide a worksheet that has four numerals on it, where each is less than 20 (e.g. 7, 14, 8, 13). Ask students to indicate whether each number is odd or even and to show why by using a diagram.

If all is well with the assessment of teaching, engage students in PRACTICE (the conclusion to the lesson plan).

An example of a well-designed worksheet follows.

More questions of each type are needed for a well-designed worksheet.

The MAINTAIN stage follows the sample worksheets.

Question 1.

Circle all the odd numbers in the list.

12, 34, 76, 89, 11, 23

Question 2.

Circle all the even numbers in the list.

45, 50, 61, 78, 99, 16

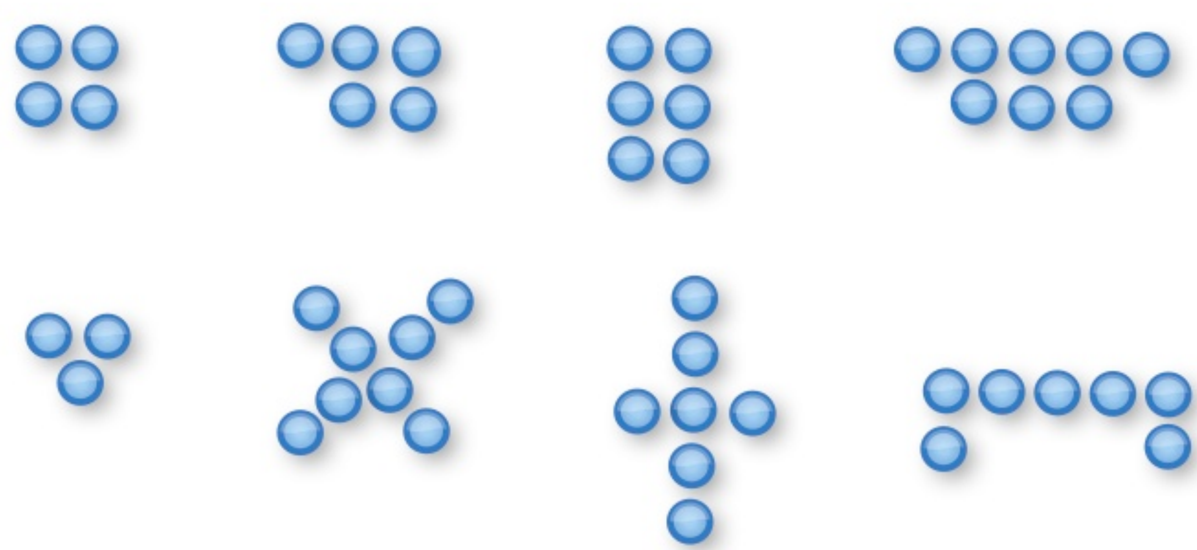
Question 3.

What is the next even number after 46? ___________

What is the next odd number after 71? __________

Question 4.

Circle the odd numbers shown in the diagrams.



MAINTAIN stage

Mini-task example

At calendar time, present a number. Ask students whether it is odd or even and explain why.

Rich-task example #1 (integrates another Number strand outcome)

Have students throw two dice, add the numbers showing, write the numeral for the sum, and tell whether it is odd or even.

Rich-task example #2 (integrates another Number strand outcome and Patterning)

Have students investigate what happens when: (1) two odd numbers are added, (2) two even numbers are added, (3) an odd and even number are added, and (4) an even and odd number are added. Have them investigate by adding about four pairs for each situation, looking for a pattern, and coming to a conclusion (e.g. when two odds are added the answer is always even).