LESSON MAKER PRO

Number Detectives

Use factors to sort numbers.

GRADE 4 · 4.NOS.C.8.d

4.NOS.C.8.d "Determine whether a given whole number in the range of 1–100 is prime, composite, or neither."

NAME _____ DATE _____

CHECK THE FACTORS

A prime number has exactly two factors: 1 and itself. A composite number has more than two factors. The number 1 has only one factor, so it is neither prime nor composite.

WORKED EXAMPLE

Is 35 prime, composite, or neither?

1. Find factor pairs: 1 × 35 and 5 × 7.
2. List the factors: 1, 5, 7, 35.
3. 35 has more than two factors.

Answer: 35 is composite.

PRACTICE 6 problems

1 Classify 1 as prime, composite, or neither.

ANSWER _____

2 Classify 2 as prime, composite, or neither.

ANSWER _____

3 Classify 19 as prime, composite, or neither.

ANSWER _____

4 Classify 36 as prime, composite, or neither.

ANSWER _____

5 Classify 49 as prime, composite, or neither.

ANSWER _____

6 Classify 91 as prime, composite, or neither.

ANSWER _____

APPLY IT Show your work

1 Maya has 23 stickers. Can she put them in equal rows with more than one row and more than one sticker in each row? Classify 23 as prime, composite, or neither.

WORK SPACE

ANSWER _____

2 A game club has 48 cards. Can the club divide them evenly among 6 players? Classify 48 as prime, composite, or neither.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A classmate says 87 is prime because it is odd. Is the classmate correct? Explain using a factor pair.

WORK SPACE AND ANSWER

Number Detectives

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Classify 1 as prime, composite, or neither.	**Neither**
2	Classify 2 as prime, composite, or neither.	**Prime**
3	Classify 19 as prime, composite, or neither.	**Prime**
4	Classify 36 as prime, composite, or neither.	**Composite**
5	Classify 49 as prime, composite, or neither.	**Composite**
6	Classify 91 as prime, composite, or neither.	**Composite**

PART 2 · APPLY IT

1. **No. 23 is prime.** The only factor pair is 1 × 23, so an arrangement with more than one row and more than one sticker in each row is not possible.
2. **Yes, each player gets 8 cards. 48 is composite.** 6 × 8 = 48, so 6 and 8 are factors of 48. It has more than two factors.

CHALLENGE

No. 3 × 29 = 87, so 87 has factors other than 1 and 87. It is composite.

Accept any correct factor pair as evidence that a number is composite. For the challenge, students must show that 87 is composite, not just that it is odd.