Factor Pair Sort

Use factor pairs to sort numbers.

5.NS.2.b "Classify, compare, and contrast whole numbers up to 100 using the characteristics prime and composite."

NAME _____ DATE _____

PRIME NUMBER

A prime number is greater than 1 and has exactly two factors, 1 and itself.

13 is prime because its only factors are 1 and 13.

COMPOSITE NUMBER

A composite number is greater than 1 and has more than two factors.

21 is composite because 1 × 21 and 3 × 7 make 21.

1 SORT

8 items

Circle PRIME or COMPOSITE for each number, then choose two items and explain which factor pairs prove each choice.

1.	12	PRIME COMPOSITE
2.	19	PRIME COMPOSITE
3.	31	PRIME COMPOSITE
4.	27	PRIME COMPOSITE
5.	43	PRIME COMPOSITE
6.	56	PRIME COMPOSITE
7.	71	PRIME COMPOSITE
8.	89	PRIME COMPOSITE

2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Write one new prime number and one new composite number less than 100. Do not use a number from the sort.

PRIME _____

COMPOSITE _____

CHALLENGE

Write a composite number less than 100 that has exactly three factor pairs. List all three factor pairs.

ANSWER KEY # Factor Pair Sort

GRADE 5 · 5.NS.2.b

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	12	**COMPOSITE**	It has factors 1, 2, 3, 4, 6, and 12.
2	19	**PRIME**	Its only factors are 1 and 19.
3	31	**PRIME**	Its only factors are 1 and 31.
4	27	**COMPOSITE**	It has factor pairs 1 × 27 and 3 × 9.
5	43	**PRIME**	Its only factors are 1 and 43.
6	56	**COMPOSITE**	It has factor pairs such as 1 × 56, 2 × 28, and 4 × 14.
7	71	**PRIME**	Its only factors are 1 and 71.
8	89	**PRIME**	Its only factors are 1 and 89.

PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **PRIME**: 23, PRIME
- **COMPOSITE**: 25, COMPOSITE

Challenge: 16: 1 × 16, 2 × 8, and 4 × 4.

Accept any explanation that names the deciding feature from the rule box for the chosen item. For Part 2, accept explanations that show factor pairs or state the correct number of factors. For Part 3, answers may vary if the numbers are less than 100, are not in the sort, and are classified correctly.