

Event Word Sort

Tell whether an event uses OR or AND.

AII-S.CP.1 "Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not")."

NAME _____

DATE _____

UNION EVENT, OR

A union event includes outcomes that meet one condition or the other condition, or both. Think of the word **or**.

From the weather outcomes sunny, rainy, snowy, and cloudy, "rainy or snowy" is a union event.

INTERSECTION EVENT, AND

An intersection event includes only outcomes that meet both conditions at the same time. Think of the word **and**.

For garden plants, "tall and flowering" is an intersection event.

1 SORT _____ 8 items

For Part 1, circle UNION or OVERLAP for each event, then for Part 2, choose two items and explain which outcomes satisfy each event and why it is a union or an overlap.

- | | | |
|----|---|---|
| 1. | A spinner has numbers 1 through 8. Land on a number less than 3 or greater than 6. | ☐ UNION ☐ OVERLAP |
| 2. | Draw one card from a standard deck. Draw a heart and a face card. | ☐ UNION ☐ OVERLAP |
| 3. | Choose one month at random. Choose a month with 31 days or a month that begins with J. | ☐ UNION ☐ OVERLAP |
| 4. | Choose a whole number from 1 through 30. Choose an even number or a multiple of 5. | ☐ UNION ☐ OVERLAP |
| 5. | Draw one card from a standard deck. Draw a black card and a numbered card from 2 through 10. | ☐ UNION ☐ OVERLAP |
| 6. | Choose one lowercase letter from a through z. Choose a vowel or one of the letters M, A, T, or H. | ☐ UNION ☐ OVERLAP |
| 7. | Choose a whole number from 1 through 24. Choose a multiple of 3 and a multiple of 4. | ☐ UNION ☐ OVERLAP |
| 8. | Roll a 12-sided number cube labeled 1 through 12. Roll a prime number or 12. | ☐ UNION ☐ OVERLAP |

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 UNION event and one new OVERLAP event. Name the sample space for each event.

UNION

OVERLAP

CHALLENGE

Make one sample space with at least six outcomes. Using that same sample space, write one UNION event and one OVERLAP event, then list the outcomes in each event.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	A spinner has numbers 1 through 8. Land on a number less than 3 or greater than 6.	UNION	The event includes outcomes from either condition: {1, 2, 7, 8}.
2	Draw one card from a standard deck. Draw a heart and a face card.	OVERLAP	The card must be both a heart and a face card: J♥, Q♥, or K♥.
3	Choose one month at random. Choose a month with 31 days or a month that begins with J.	UNION	A month can meet either condition, including January, which meets both.
4	Choose a whole number from 1 through 30. Choose an even number or a multiple of 5.	UNION	The event includes numbers meeting at least one of the two conditions.
5	Draw one card from a standard deck. Draw a black card and a numbered card from 2 through 10.	OVERLAP	The card must meet both conditions, such as the 7 of spades.
6	Choose one lowercase letter from a through z. Choose a vowel or one of the letters M, A, T, or H.	UNION	The event includes a letter from either group. A is allowed because it is in both groups.
7	Choose a whole number from 1 through 24. Choose a multiple of 3 and a multiple of 4.	OVERLAP	The number must be divisible by both 3 and 4, so the outcomes are 12 and 24.
8	Roll a 12-sided number cube labeled 1 through 12. Roll a prime number or 12.	UNION	The event includes any prime outcome plus 12.

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)

- **UNION:** From the numbers 1 through 10, choose a number that is 2 or greater than 8.
- **OVERLAP:** From the numbers 1 through 20, choose a number that is even and greater than 12.

Challenge: Sample space {1, 2, 3, 4, 5, 6}. UNION: odd or greater than 4 = {1, 3, 5, 6}. OVERLAP: even and greater than 3 = {4, 6}.

Accept equivalent wording when students correctly identify that union means either condition and intersection means both conditions. In Part 2, students should name outcomes or describe how each chosen event meets its condition(s).