

## 6.4 Statements with *And* and *Or* TEKS a.6; 8.16.A

**MATERIALS** • paper and pencil

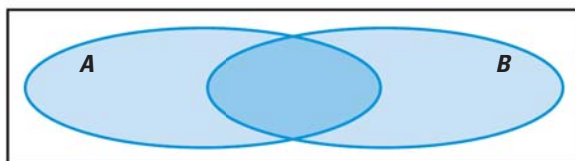
**QUESTION** What is the difference between a statement with *and* and a statement with *or*?

**EXPLORE** Use a Venn diagram to answer questions about a group

**STEP 1 Answer questions** Copy the questions below and write your answers beside them.

1. Are you taking an art class?
2. Are you taking a foreign language class?

**STEP 2 Complete a Venn diagram** Form a group with 3 or 4 classmates. Draw a Venn diagram, like the one shown below, where set *A* consists of students taking an art class, and set *B* consists of students taking a foreign language class. Then write the name of each student in the appropriate section of the diagram.



**DRAW CONCLUSIONS** Use your observations to complete these exercises

In Exercises 1–3, use your Venn diagram to list the students who belong in the given set.

1. Set *A*
2. Set *B*
3. Set *A and* set *B*
4. The students who belong in set *A or* set *B* are all of the students who belong only in set *A*, only in set *B*, or in set *A and* set *B*. List the students in your group who belong in set *A or* set *B*.
5. **OPEN-ENDED** Write a statement with *and* so that the statement is true for all students in your group.
6. **OPEN-ENDED** Write a statement with *or* so that the statement is true for all students in your group.

**REASONING** Tell whether the statement is *true* or *false*.

7. If a student belongs in set *A and* set *B*, then the student belongs in set *A or* set *B*.
8. If a student belongs in set *A or* set *B*, then the student belongs in set *A and* set *B*.