



CONDITIONAL STATEMENTS AND TRUTH VALUE

Rewrite It in If-Then Form: Which Part Goes After If?

8 boxes · if, when, because, only if · the wrong answer swaps the two parts

FREE

5

The streetlights come on when it gets dark.

- If the streetlights come on, then it gets dark. **Go to box 3.**
- If it gets dark, then the streetlights come on. **Go to box 2.**

Hint: Look at the word when. Which part comes right after it?

2

A figure is a rectangle only if it is a square.

- If a figure is a rectangle, then it is a square. **Go to box 7.**
- If a figure is a square, then it is a rectangle. **Go to box 6.**

Hint: Look at the words only if. The part right after them is the conclusion.

7

Two angles are congruent if they are vertical angles.

- If two angles are vertical angles, then they are congruent. **Go to box 1.**
- If two angles are congruent, then they are vertical angles. **Go to box 3.**

Hint: Look at the word if. Which part comes right after it?

1

The road is wet because it is raining.

- If the road is wet, then it is raining. **Go to box 6.**
- If it is raining, then the road is wet. **Go to box 8.**

Hint: Look at the word because. Which part is the reason?

1. **Hand out page 3.** Students start at box 5.
2. **Say this once:** *“The part right after if, when or because goes right after If. But the part right after only if goes after then.”*
3. **Students write each box number in the row at the bottom.** A clean run is 5, 2, 7, 1, 8, 4, then Finish.

Student sheet page 3, one per student.

Answers page 4: the route, and the right answer in every box.

The wrong answer in every box is the same mistake: the two parts are swapped. This is the biggest mistake in this lesson. A student who always puts the first part of the sentence after If leaves the route at step 1. A student who reads “only if” as if it were “if” leaves the route at step 2.

Some sentences are false on purpose. “A figure is a rectangle only if it is a square” is false, and its correct rewrite is false too. The swapped rewrite is true. So a student who picks the rewrite that sounds true leaves the route at step 1. When you mark, count a swapped rewrite as wrong, even when it happens to be true. Box 8 is a definition. There both rewrites are true, and only the word *whenever* decides.

No box is a dead end. The two boxes off the route (3 and 6) look like every other box. Their right answer leads back to the route. The row of box numbers shows you at a glance who made a mistake. A clean run is 6 numbers long.



This is the free lesson this activity came from. The worksheet, the full answers and the lesson plan are on it, at three levels of difficulty.

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Name _____

Period _____

Date _____

Start at box 5. Choose the correct if-then form of the sentence. Go to the box it names. Write each box number in the row at the bottom.

1

The road is wet because it is raining.

- If the road is wet, then it is raining. **Go to box 6.**
- If it is raining, then the road is wet. **Go to box 8.**

Hint: Look at the word because. Which part is the reason?

2

A figure is a rectangle only if it is a square.

- If a figure is a rectangle, then it is a square. **Go to box 7.**
- If a figure is a square, then it is a rectangle. **Go to box 6.**

Hint: Look at the words only if. The part right after them is the conclusion.

3

A figure has four sides if it is a square.

- If a figure is a square, then it has four sides. **Go to box 2.**
- If a figure has four sides, then it is a square. **Go to box 5.**

Hint: Look at the word if. Which part comes right after it?

4

The alarm sounds only if a door is opened.

- If the alarm sounds, then a door is opened. **Go to Finish.**
- If a door is opened, then the alarm sounds. **Go to box 1.**

Hint: Look at the words only if. The part right after them is the conclusion.

5

The streetlights come on when it gets dark.

- If the streetlights come on, then it gets dark. **Go to box 3.**
- If it gets dark, then the streetlights come on. **Go to box 2.**

Hint: Look at the word when. Which part comes right after it?

6

Sam plays in the game only if he goes to practice.

- If Sam goes to practice, then he plays in the game. **Go to box 2.**
- If Sam plays in the game, then he goes to practice. **Go to box 7.**

Hint: Look at the words only if. The part right after them is the conclusion.

7

Two angles are congruent if they are vertical angles.

- If two angles are vertical angles, then they are congruent. **Go to box 1.**
- If two angles are congruent, then they are vertical angles. **Go to box 3.**

Hint: Look at the word if. Which part comes right after it?

8

Whenever two angles are complementary, their measures add to 90° .

- If the measures of two angles add to 90° , then they are complementary. **Go to box 7.**
- If two angles are complementary, then their measures add to 90° . **Go to box 4.**

Hint: Look at the word whenever. Which part comes right after it?

Write the box numbers here, in order, as you go.

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Maze — answers

For the teacher

The route: 5 → 2 → 7 → 1 → 8 → 4 → Finish. Boxes 3 and 6 are off the route.

Box	Where it is	Correct rewrite	Next box
5	step 1	If it gets dark, then the streetlights come on. hypothesis: <i>it gets dark</i> (clue: the word when)	right → 2; wrong → 3
2	step 2	If a figure is a rectangle, then it is a square. hypothesis: <i>A figure is a rectangle</i> (clue: the words only if)	right → 7; wrong → 6
7	step 3	If two angles are vertical angles, then they are congruent. hypothesis: <i>they are vertical angles</i> (clue: the word if)	right → 1; wrong → 3
1	step 4	If it is raining, then the road is wet. hypothesis: <i>it is raining</i> (clue: the word because)	right → 8; wrong → 6
8	step 5	If two angles are complementary, then their measures add to 90°. hypothesis: <i>two angles are complementary</i> (clue: the word whenever)	right → 4; wrong → 7
4	step 6	If the alarm sounds, then a door is opened. hypothesis: <i>The alarm sounds</i> (clue: the words only if)	right → Finish; wrong → 1
3	off the route	If a figure is a square, then it has four sides. hypothesis: <i>it is a square</i> (clue: the word if)	right → 2; wrong → 5
6	off the route	If Sam plays in the game, then he goes to practice. hypothesis: <i>Sam plays in the game</i> (clue: the words only if)	right → 7; wrong → 2