Session 3: Tennis game

To work out the rules (algorithms) for a two-player sports game

SWITCHEDON
Computing

Let's discuss

Talk with a partner:

What sort of equipment do you usually play games on?

- An iPad or other tablet?
- A smartphone?
- A desktop or laptop computer?
- A games console?
- On the web?

What are your favourite games?

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Computing

Let's learn
One of the first console games was Pong, which was a very simple tennis game.

Let's discuss
1. Have you ever played tennis games on a games console, tablet or computer? What are they like?
2. Have you ever played tennis in real life? In what ways is tennis on a computer similar to tennis in real life? In what ways is it different?

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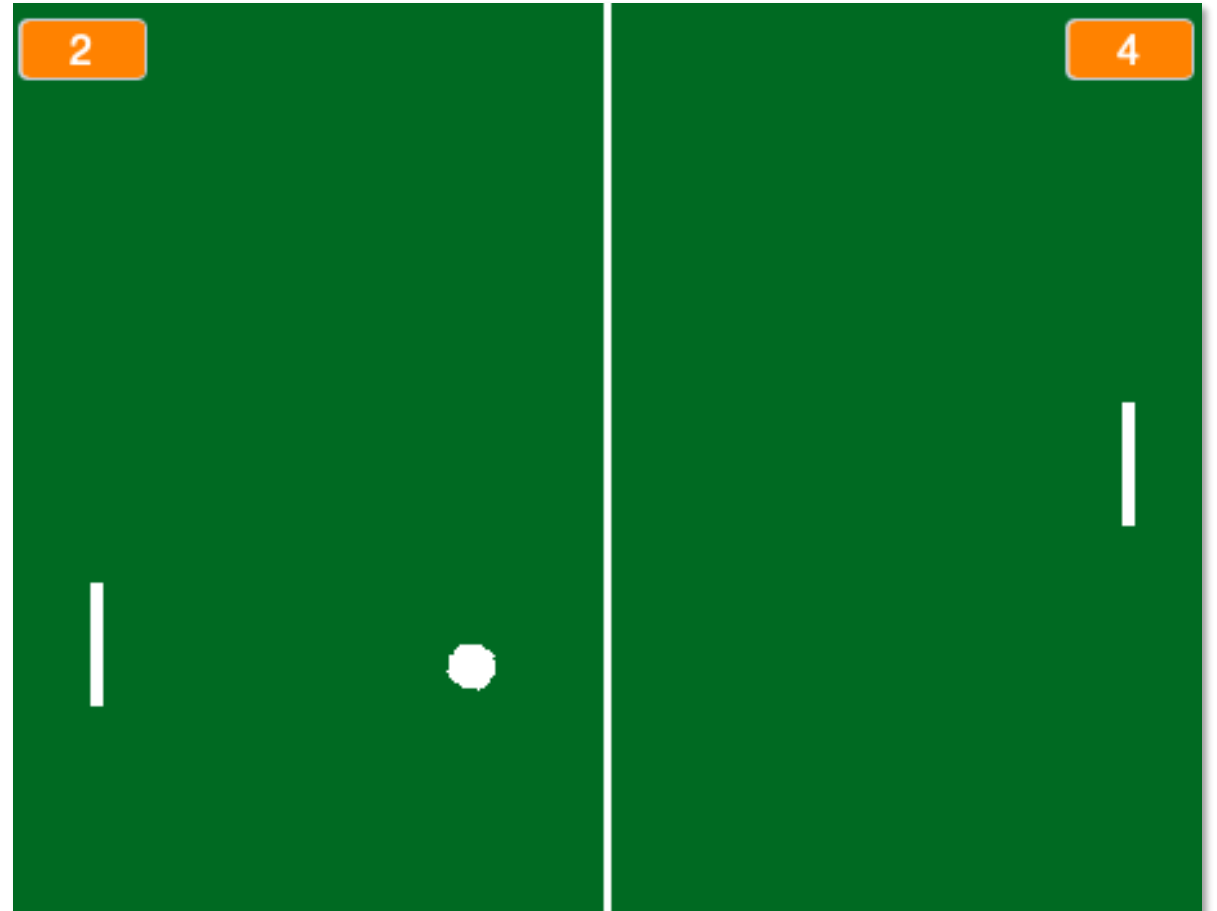
Let's learn

Computer games like tennis are simulations – they copy some aspects of the real-world game or situation on a computer, but simplify them to leave some aspects out (for example, leaving out different tennis shots). We call this approach computational **abstraction**.

Let's discuss

Think about the Fish game:

1. In what ways was it like a real undersea ecosystem?
2. In what ways was it different?
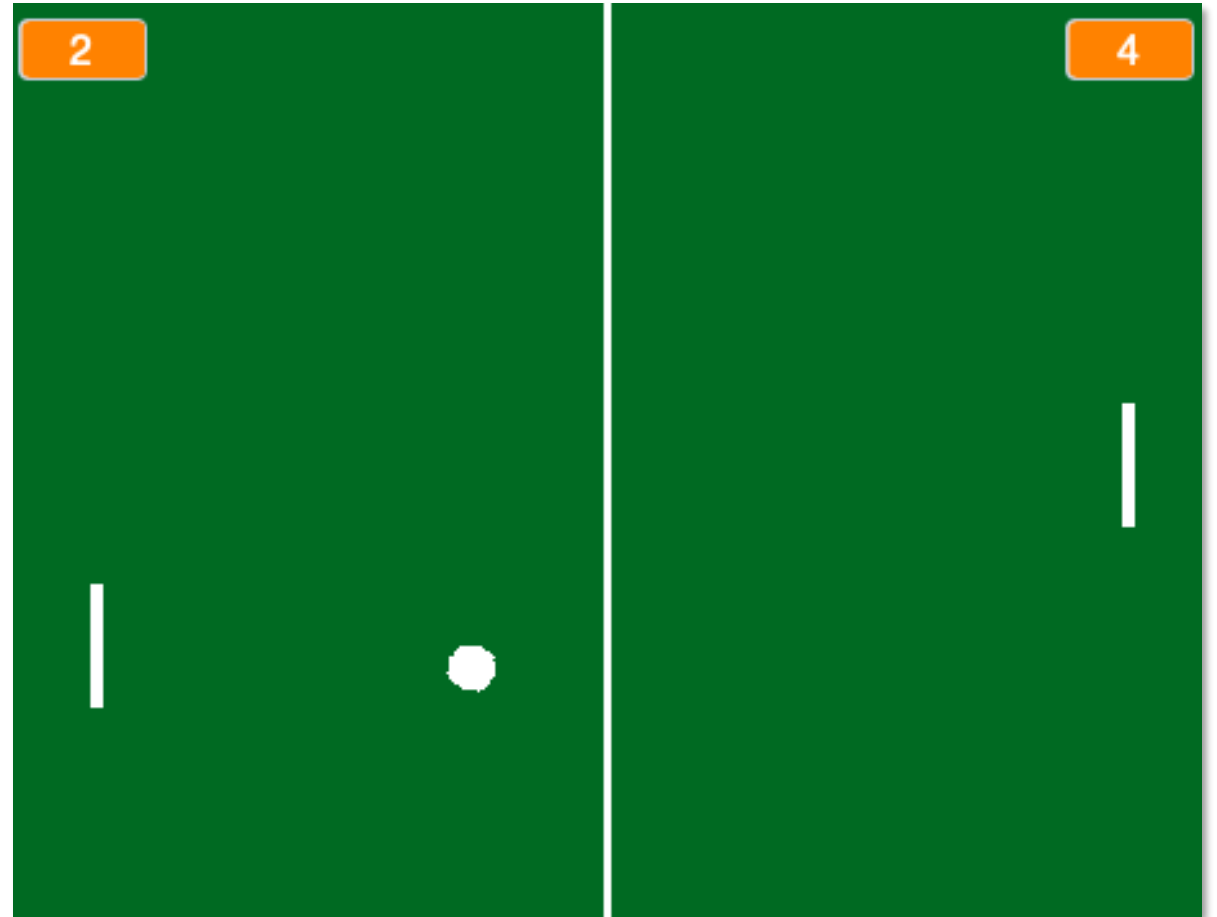
Do you remember what **abstraction** is?
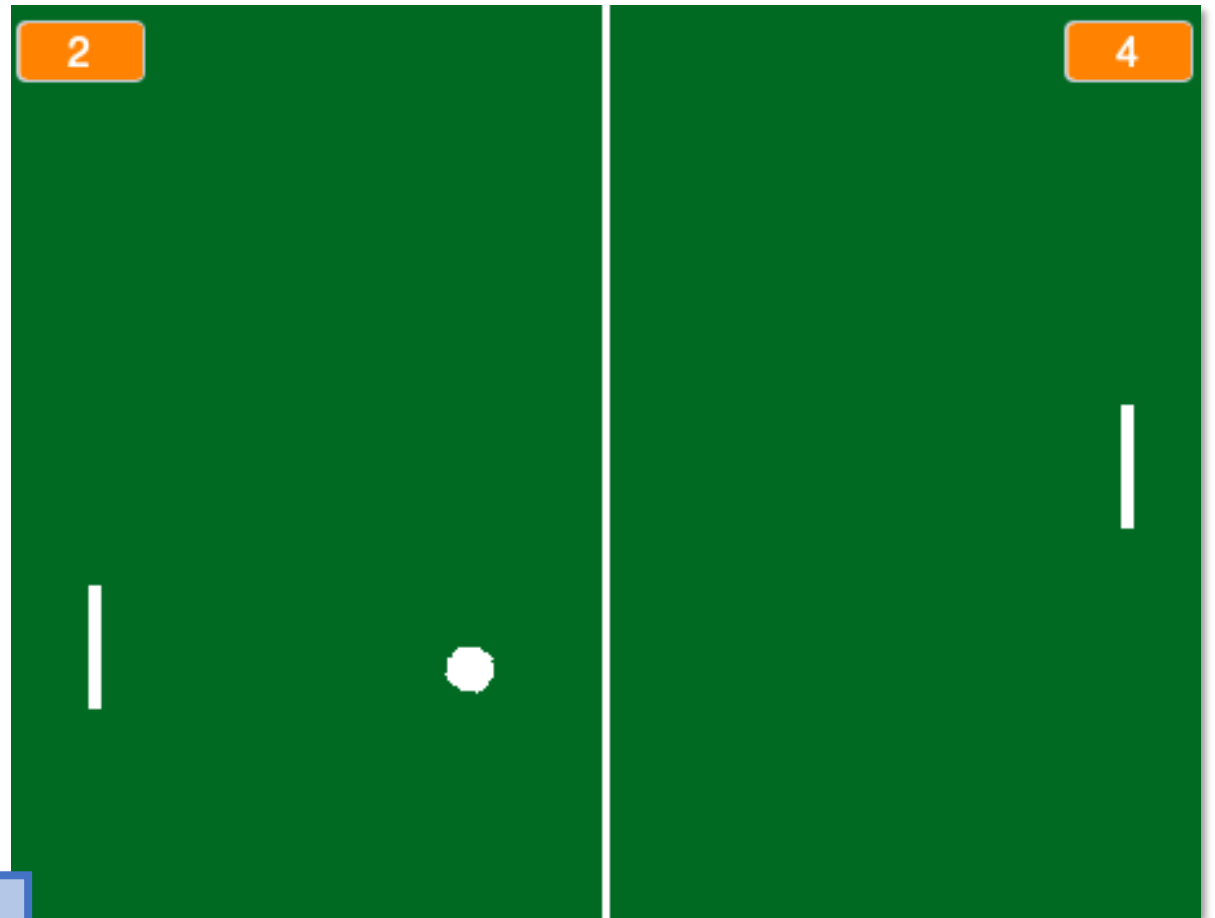Click on this box to see the definition.

Let's learn

Who would like to try out the tennis game?

- The left player uses the 'W' and 'S' keys.
- The right player uses the 'O' and 'L' keys.
- Press the Space bar to start.

Let's do

Can you describe what's happening in the game? Can you use **logical reasoning** to predict what will happen?

Do you remember what **logical reasoning** is?
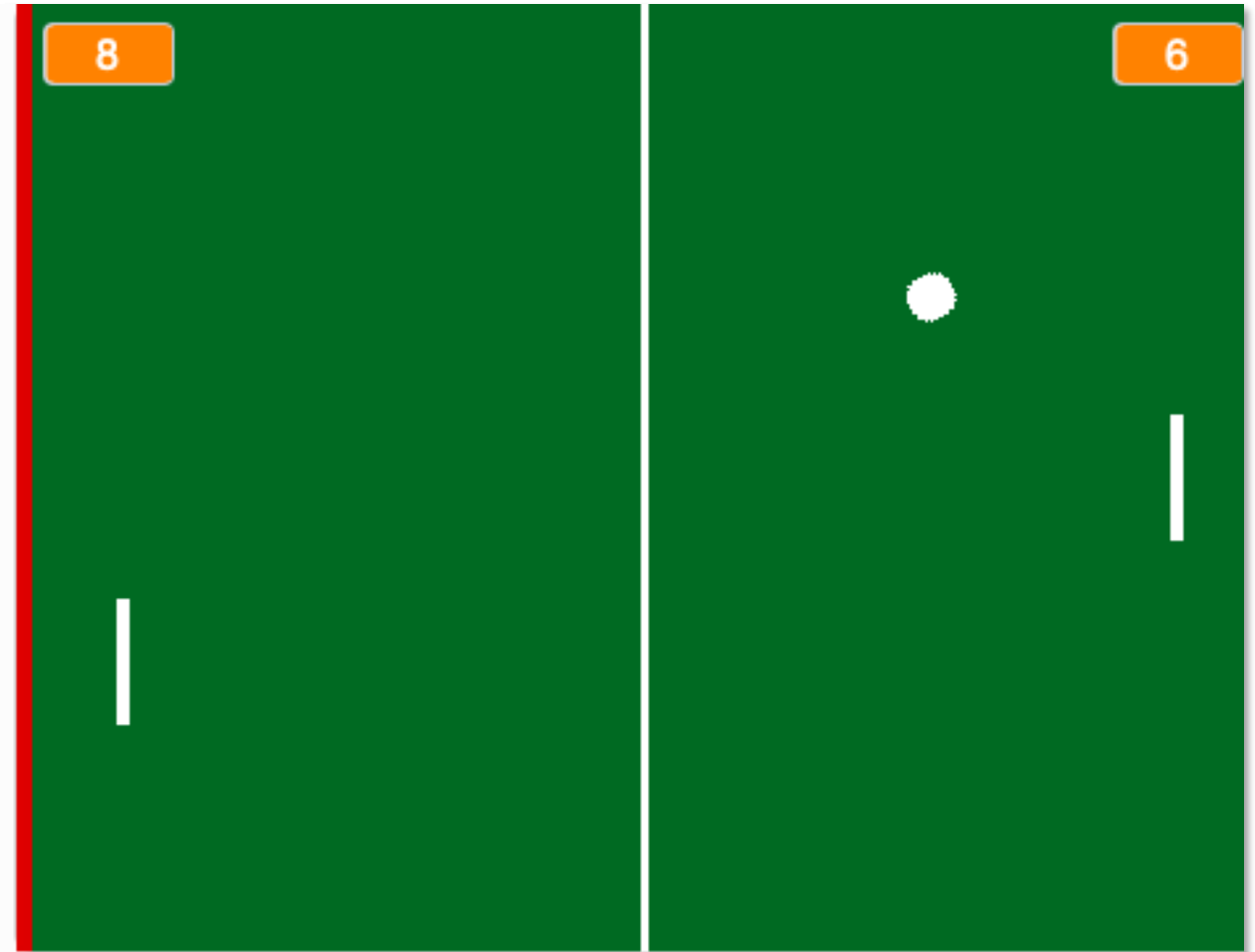
Click on this box to see the definition.

2

4

Click the image to open the game!

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Let's try

Work with a partner to play the game. Once you've got the hang of it, try to work out as much as you can about the game's **algorithms**.

Record your thoughts on the following questions:
1. How is the score added?
2. How do the racquets move?
3. How does the ball move?
4. Can you describe what happens when the ball hits the racquet?
5. What are the random elements of the game?

8

6

Do you remember what an **algorithm** is?
Click on this box to see the definition.

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Let's try

Let's look at the **source code** for the game.

Let's discuss

Can you see the connection between your observations and the code that is on screen?

1. The instructions for moving the two racquets.
2. The code that determines what the ball does when it hits either of the racquets.

Answers on the next slide!

Do you remember what **source code** means?

Click on this box to see the definition.

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Let's review

1. Each racquet has instructions to move up and down. They have different instructions so they can be used at the same time.
2. When the ball touches one of the racquet **sprites** it will bounce off the opposite way.

Do you remember what a **sprite** is?
Click on this box to see the definition.

Let's learn
Many games include an element of progression – did you notice a problem when we played the game?
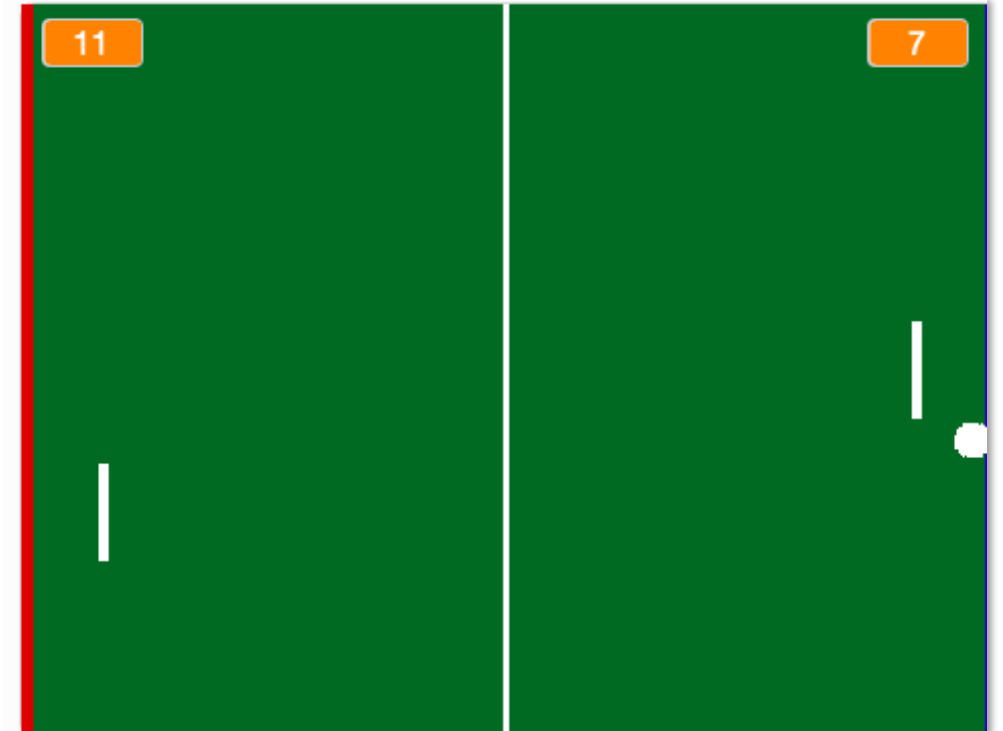
Let's discuss
1. How might this game be improved?
2. How might progression be built into a game like this?

Click to see possible answers!

Let's try
Try out some of your ideas by ideas by modifying (**'remixing'**) the game.

Do you know what **remix** means?
Click on this box to see the definition.

Let's review
1. The ball could speed up to make it more difficult to hit.
2. After 10 points the racquet could change to smaller ones.