Binary memory game

Using your knowledge of binary numbers, play the Binary Memory game.

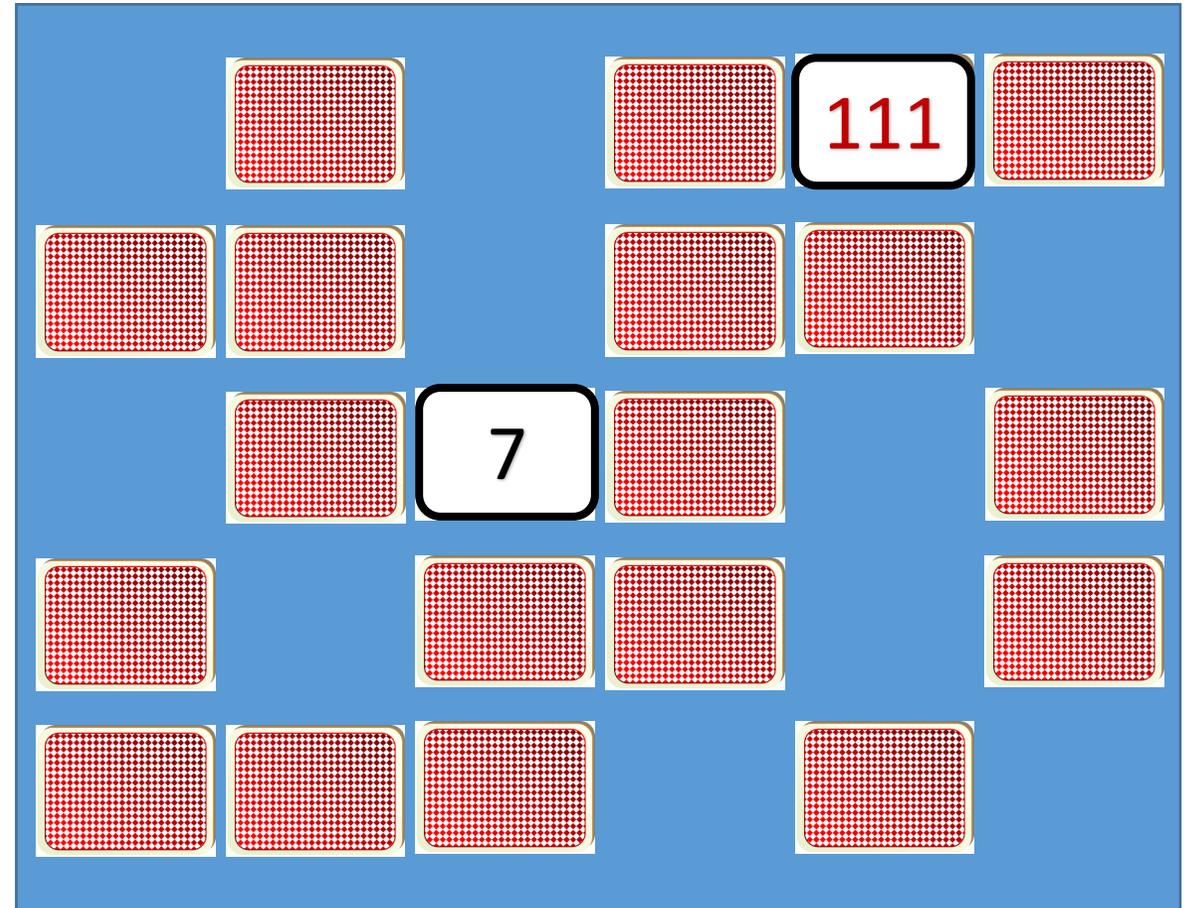| 30 MINS	EASY	AGES 10−12

ACTIVITY TYPE: GAME

You will need …

- [Binary and decimal game cards](#)

- Scissors

- Understanding of binary numbers: [Learn more about binary](#)

- Flat surface to lay cards on

- Two or more players

About the activity

In this activity you will play the game of Memory, collecting cards when you match a binary and decimal number.

The winner is the person who collects the most cards.

Binary numbers: What's that?

Before you play the game, learn more about what a binary number is and how to turn a binary number into a decimal number.

- [James May introduces binary](#)

- [Computer Science Unplugged](#)

Quick Reference Card

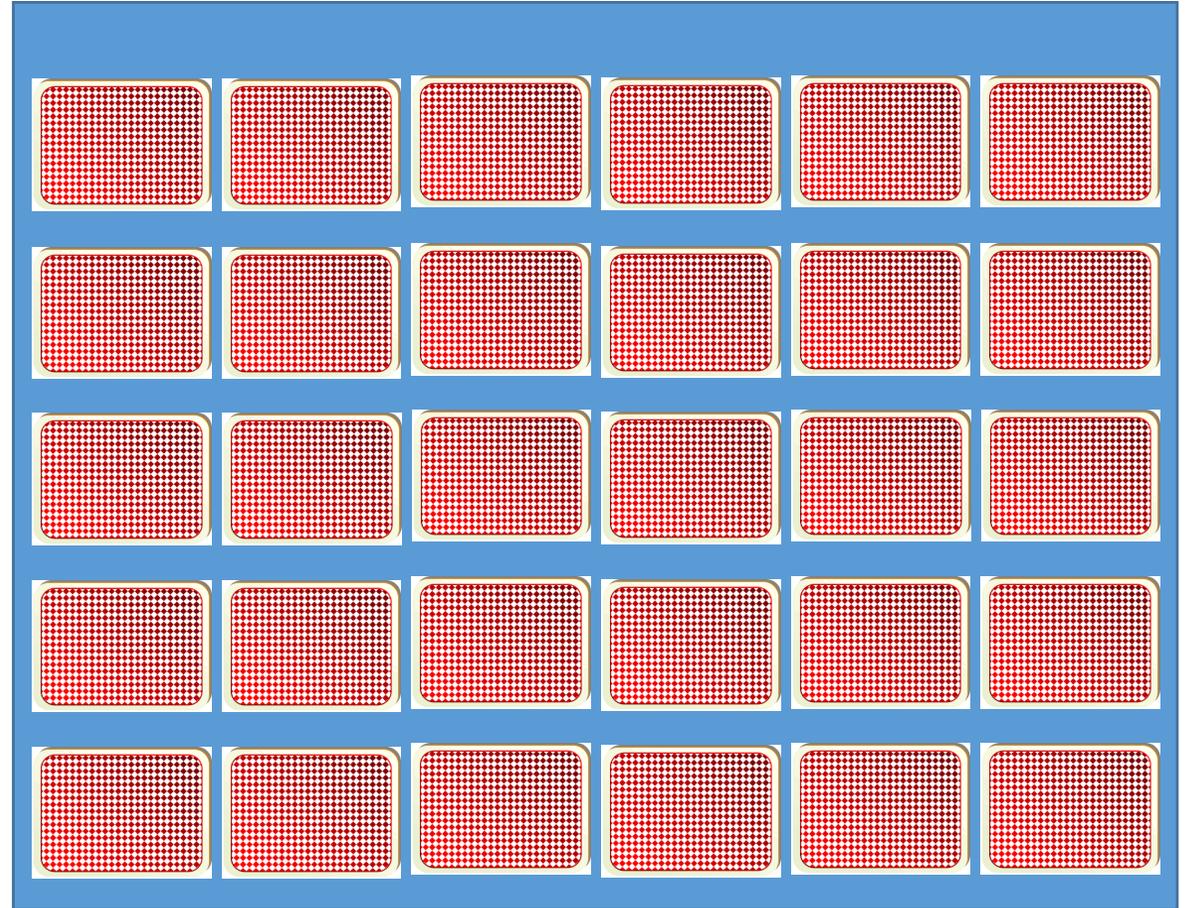| Decimal	Binary
1	1
2	10
3	11
4	100
5	101
6	110
7	111
8	1000
9	1001
10	1010
11	1011
12	1100
13	1101
14	1110
15	1111

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1 Let's get started

Cut out each of the Binary Memory game cards. You should have 30 cards in total.

Shuffle the cards.

Lay all the cards in rows, face down, to form a large rectangle.

Tip: The first few times you play, it may help to have the quick reference card next to you.

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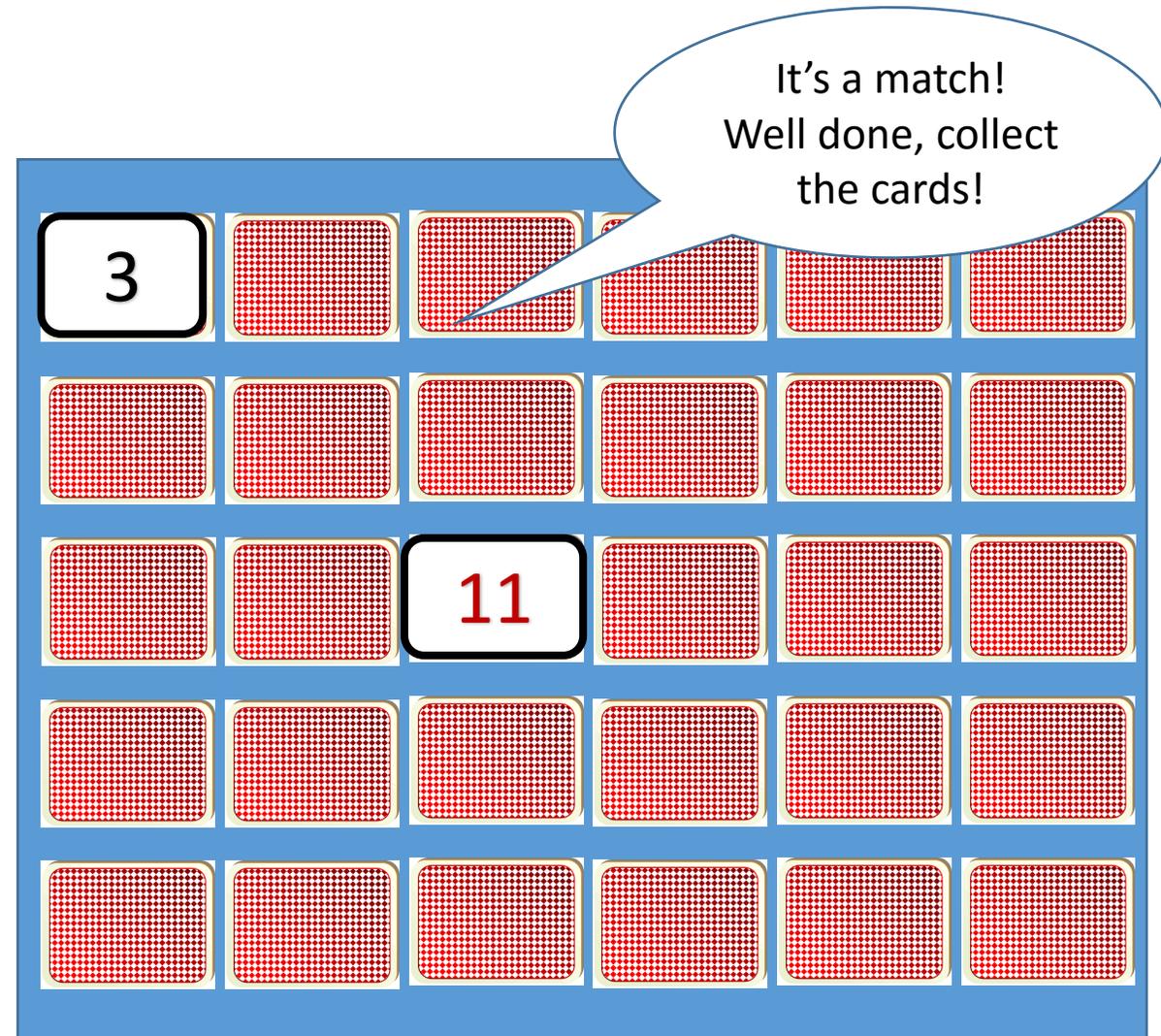
2 What's next?

Turn over any two cards.

If the two cards match, keep them.

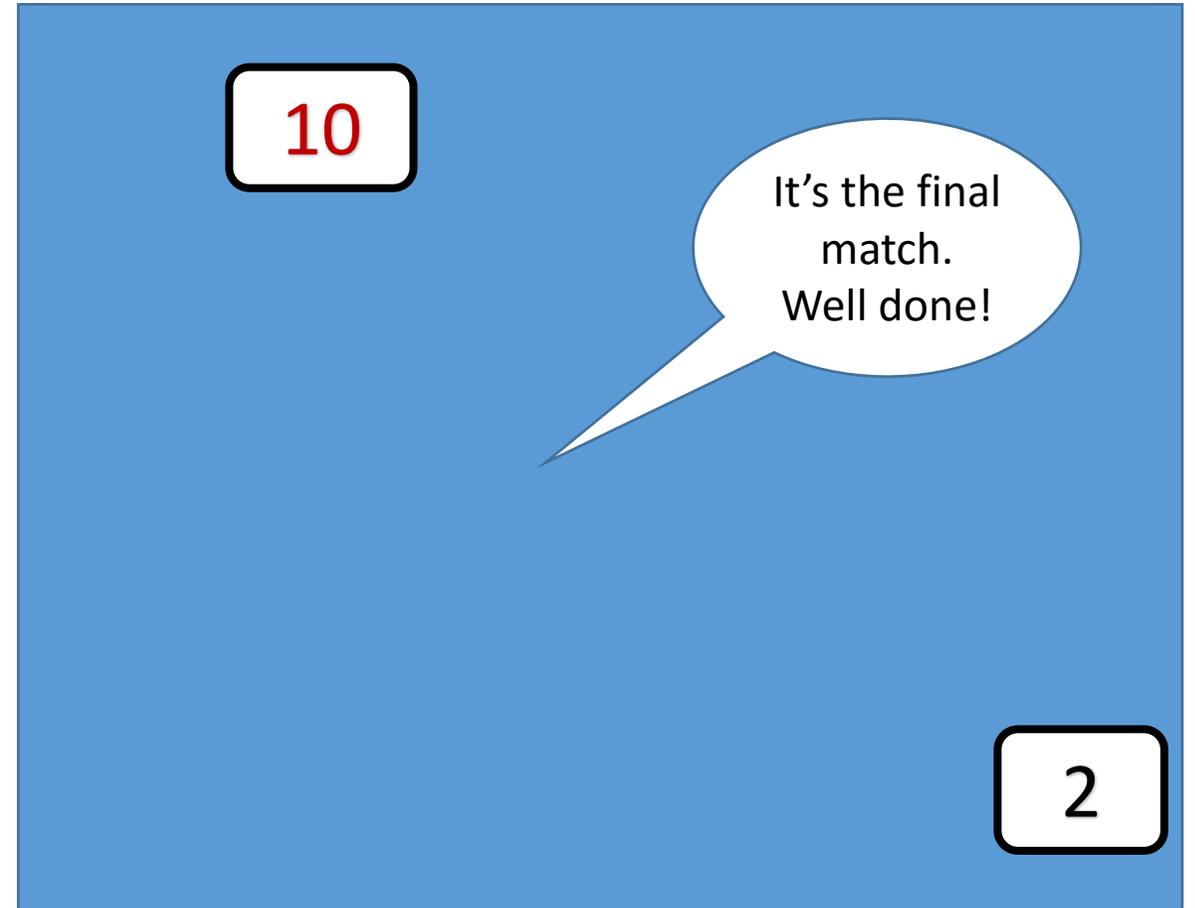If they don't match, turn them back over.

What to know:
- Remember what was on each card and where it was.
- Watch and remember during the other player's turn.

3 Congratulations!

When the last pair is matched, you have finished the game.

Count up all your pairs. The person with the most matches is the winner.

Binary and decimal game cards

Before beginning this activity, print and cut out binary and decimal cards.

You can download a PDF of the binary and decimal cards, and a quick reference card, from the Digital Technologies Hub website.

Binary numbers are in red and decimal numbers are in black.

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15

1	10	11
100	101	110
111	1000	1001
1010	1011	1100
1101	1110	1111

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Why are we learning about this?

The binary number system is a base-2 number system. This means it only has two numbers: 0 and 1. All information in a computer (words, pictures, movies, sound) is stored and transmitted as sequences of bits, or binary digits.

A bit is a single piece of data that can be thought of as either 0 or 1. Each binary number is made up of bits; for example, the number 1010 is made of 4 bits. Eight bits is known as a byte. A byte might look like: 01000100 (this example represents the letter D).

Find out more here.

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