Be a secret agent
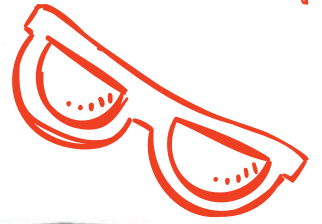
Learn the basics of computer coding and encryption by deciphering messages from other agents using a cipher wheel

Activity

Make a cipher wheel

Suitable for Beavers and Cubs

You will need (per person)
- printed template
- scissors
- pen and pencil
- paper fastener

Instructions

1 Print off the cipher wheel templates from **scouts.org.uk/raspberry-pi**. You will need one cipher wheel for each 'agent'. Distribute the templates and ask the young people to safely cut out both of the circles.

2 Ask the young people to write the alphabet in the outer boxes of both circles, with one letter in each box.

3 Show them how to punch a hole through the centre of each circle with a pencil. Then push a paper fastener through the small circle first and then the larger one, before securing it at the back.

4 Explain to the group that the letters can be 'encrypted' and 'decrypted' to create coded messages, which is how computers send information. Refer to 'How to use the cipher wheels' across the page for the rest of the activity...

Wogglebox

Joshua says: 'It was really fun working out the messages. We felt like super cool spies like James Bond and that was awesome!'

Time needed
45 minutes

Badge

Raspberry Pi partners the Digital Maker Staged Activity Badge

Partner

🍓 Raspberry Pi

Outcomes

This activity will introduce your section to the basics of encryption and decryption. Encryption is when you hide a word and decryption is revealing the word. By creating the cipher wheel, the young people will learn how to encrypt and decrypt letters manually so they can send and receive secret messages.

More information

The Raspberry Pi Foundation works to put the power of digital making into the hands of people all over the world. Making things with technology can help young people learn how to solve problems, build resilience, help their communities and express themselves. Projects and ideas to help towards the Digital Maker Staged Activity Badge are available at **scouts.org.uk/raspberrypi**.

How to use the cipher wheels

Divide the young people into small groups or pairs. They should turn their cipher wheels so that the 'A' on both wheels are lined up. Next, ask each group to choose two secret letters – one from each wheel – and remember them. Suggest they choose something that's easy to remember, for example the first letter in their siblings' or pets' names. Next, they should move the wheels so that the two secret letters line up. The outer wheel is used as the code alphabet and the inner wheel as the normal alphabet. From now on, the letters in the outer wheel will match the letters in the inner wheel and the agents will be able to encrypt and decrypt secret messages within their group, but only if they know the secret letters.