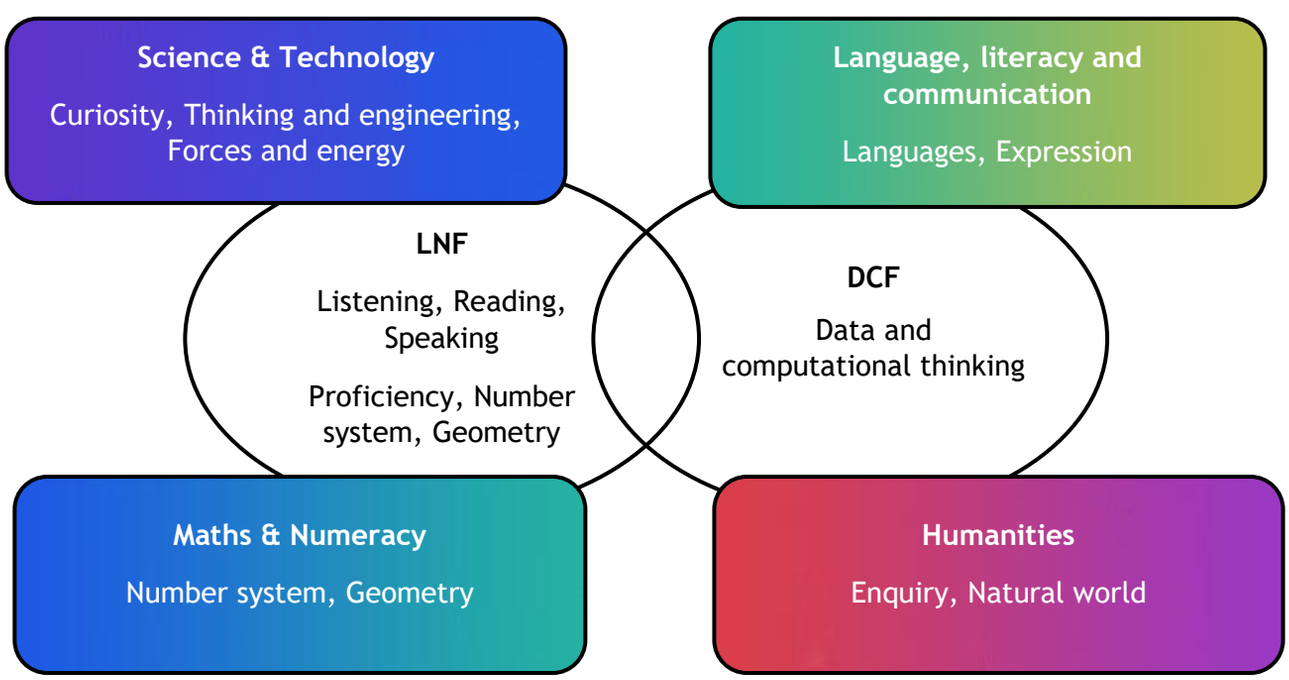
What are mazes?

Overview

Learners activate their prior knowledge and understanding of mazes through viewing images and possibly searching on the internet for images. They design their own maze to make a maze map and visit the Common to test the maps there. Then, learners try to build their maze outside using sticks, branches and leaves. As this is trial and error, the use of prototypes is inherent. (Please note that building the mazes from their maps also requires changes to the maps and much thinking time. Learners use positional language to describe to a blindfolded teacher how to navigate their maze and extend this to other children and/or programmable floor robots.

Opportunities to develop...



COMIN GELLIGAER & MERTHYR COMMON
Llywodraeth Cymru Welsh Government

Resources required for the activity

- Internet access (optional)
- Sticks, branches, leaves, etc.
- Programmable robot, e.g. Bee-Bots, Botley etc. (optional).

Resources included with this activity

1. Images of mazes
2. Suggested focus questions in sets, relating to each task, which can be given to each pair/group as they start each task. Conversely, these questions can be used by the teacher.

How to run the activity

Task 1: What is a maze?

Ask small groups of learners to think about and discuss what they know about mazes. You could show them images of mazes such as those in **Resource 1** and/or others from the internet if required. For example, a garden maze made from hedges or a 2D maze they might have seen in a puzzle book. Encourage them to share their ideas and experiences of mazes with the class.

Suggested questions

- What does the word ‘maze’ mean? Why do you think that?
- When have you seen a maze? Where did you see it? What did you think? Why?
- When have you been to a maze? Where was it?
- What did it look like?
- What was it made from? Why?
- How do you use a maze?

Task 2: How can we design a maze?

Ask small groups of learners to design a simple maze on paper – this will be their maze map. Encourage learners to keep the maze relatively simple, as they are going to make the maze that they draw.

Suggested questions

- How can you show your maze as a map? Why do it like that?
- What will your maze look like? Why?
- Will your maze have straight or curved edges? Why?
- Describe your maze to another group. How easy was it to describe your maze map to another group? What was hard to describe? Why?

Task 3: How can we make a maze?

Plan and organise a visit to take learners to Gelligaer and Merthyr Common. During this visit, learners could be shown the Red Kite trail or Heritage trail maps and consider how these are used to work out how to follow different routes around the Common. Ask learners to use the maps to try and navigate on one or more of the routes.

Back in school, ask learners to collect lots of sticks, branches and leaves to make their maze. Invite small groups of learners to make their maze using the maze map and the materials they have collected. This task uses trial and error and therefore, it is good if learners make mistakes and correct them, e.g. making the outside of the square too small, etc.

Suggested questions

- What was easy about making your maze from the maze map? Why was this easy?
- What was difficult about making your maze from the maze map? Why was this difficult?
- How could you make your maze better? Why would this make your maze better?

To focus on position and its language, blindfold yourself and ask the children to navigate you through their mazes with their voices without you touching an edge.

Task 4: How can we get around our maze?

This task also has a focus on position and its language. Initially in Task 3, you have blindfold yourself and asked a group of learners to give you verbal directions to navigate you through their maze without you touching a stick.

If you have access to a programmable floor robot, learners could make use of these and provide instructions to navigate it through their maze. Alternatively, learners from different groups could take turns to be blindfolded and given instructions to navigate themselves through each other's mazes.

Suggested questions

- What instructions do you need to give to help someone through your maze? Why?
- How easy was this? Why?
- What was the hardest part? Why?
- How can you move the robot forwards/backwards/left/right/clockwise/anti-clockwise?
- What are the problems with using the floor robot? How could you overcome these?

COMIN GELLIGAER & MERTHYR COMMON
Llywodraeth Cymru Welsh Government

Resource 1: Images of mazes

Resource 2: Suggested focus questions

Task 1: What is a maze?

- What does the word 'maze' mean? Why do you think that?
- When have you seen a maze? Where did you see it? What did you think? Why?
- When have you been to a maze? Where was it?
- What did it look like?
- What was it made from? Why?
- How do you use a maze?

Task 2: How can we design a maze?

- How can you show your maze as a map? Why do it like that?
- What will your maze look like? Why?
- Will your maze have straight or curved edges? Why?
- Describe your maze to another group. How easy was it to describe your maze map to another group? What was hard to describe? Why?

Task 3: How can we make a maze?

- What was easy about making your maze from the maze map? Why was this easy?
- What was difficult about making your maze from the maze map? Why was this difficult?
- How could you make your maze better? Why would this make your maze better?

Task 4: How can we get around our maze?

- What instructions do you need to give to help someone through your maze? Why?
- How easy was this? Why?
- What was the hardest part? Why?
- How can you move the robot forwards/backwards/left/right/clockwise/ anti-clockwise?
- What are the problems with using the floor robot? How could you overcome these?

COMIN GELLIGAER & MERTHYR COMMON
Llywodraeth Cymru Welsh Government