TOWERS

SUPPORT MATERIALS

If you need further support on specific aspects of outdoor learning these materials can enhance the engaging experiences you are providing. They can support you as you design, plan and implement your curriculum. Outdoor learning is a great way to develop learners' integral skills (creativity and innovation, critical thinking and problem-solving, personal effectiveness, planning and organising). You will want to focus on why learning matters and ensure you are meeting your learners' needs.
These materials show paths that could be taken through the activity. These are not meant to be prescriptive. You should adapt your approach depending on your learners' needs and interests and your local area.

OVERVIEW

Learners consider what they know about towers, visit some in the locality, taking notes and measurements and research to find out more about one of them. They find out how long the tower would be if laid flat on the ground and make a leaflet to encourage others to visit the tower. Learners are shown famous towers, consider what an earthquake is and how one might affect such towers. They access earthquake data and answer questions before watching a video showing how earthquakes happen. Groups of learners build the tallest model tower they can that will withstand an 'earthquake' and test the model of each group, using a reflection triangle to review the task.

CURRICULUM FOR WALES

Areas explored:

- Humanities
- Languages, Literacy and Communication
- Mathematics and Numeracy
- Science and Technology

Activity also incorporates aspects of cross-curricular skills outlined in the LNF and DCF.

RESOURCES

Internet enabled device and internet access.
Means of taking photographs, e.g. smart phones, tablets, cameras, etc.
Measuring equipment – metre rule, sports tape, trundle wheel, etc.

DOING THE ACTIVITY

- Most tasks require learners to work in pairs or groups.
- Encourage learners to share their ideas, and through open questioning, explain and justify their ideas when possible. Focus questions have been suggested to guide learners through the tasks.
- Some tasks might be more effective if pairs or groups of learners have access to an internet enabled device.
- When taking learners outdoors, it is essential that the Countryside Code is adhered to and any relevant risk assessments have been carried out with risks mitigated.

TASK 1

WHAT LOCAL TOWERS DO WE KNOW?

The task starts by showing learners images of a castle, an electricity pylon and a lighthouse. After discussing what they are and why they were built, you might need to explain that collectively we might refer to these as 'towers'. Encourage learners to consider towers they know about and take them to visit a few towers in the locality. You could look at maps here to decide which towers to visit.

A tower is defined as a tall structure, taller than it is wide, often by a significant factor. It can stand alone or be connected to adjacent buildings, or it may be a feature on top of a larger structure or building. Background reading can be accessed on this link: Tower - New World Encyclopedia.

Invite learners to sketch and measure the towers and to make notes. You could introduce estimation techniques, such as:

Measuring shadows: To measure the height of a tower using shadows you need 3 measurements:

- Your height = A
- Your shadow's length = B
- The tower's shadow length = C

Use the equation (A x C) / B = tower's approximate height

Other ideas can be found at: How to measure a tree - YouTube (nearly 2 minutes).

There are free apps that can be used to measure the height of a building or tower. A list of these can be found on sites such as:

- Best Height Meter Apps – Free Apps For Me
- 12 Best Height Meter Apps for Android and iOS – TechDator

If there aren't any towers within walking distance of school, you could take photographs and measure the height of towers slightly further afield or ask learners to take photographs and measure tower heights when out and about with their family, etc.

Ask learners to carry out research to find out more information about one of the towers they visited. Using the school grounds, invite learners to estimate the length of the tower if it was laid flat. They could then use a metre rule, measuring tape or trundle wheel to measure out the actual length/height of the tower and compare it to their estimate.

End the task by asking learners to consider the contents and then make a leaflet to encourage others to visit their chosen tower.

TASK 2

HOW CAN WE BUILD A TOWER TO WITHSTAND AN EARTHQUAKE?

Initially, learners are shown images of the Houses of Parliament, the Leaning Tower of Pisa and the Eiffel tower and invited to discuss the names of these towers and how tall they are. You could explain that many towers are built in earthquake zones and encourage learners to consider what an earthquake is and how it might affect these towers.

Learners access and interrogate data on this link: EMSC - European-Mediterranean Seismological Centre and watch the video: How do earthquakes happen? - YouTube (about 8.5 minutes).

Interestingly, humans can't feel earthquakes with a magnitude of 2 or less.

The following links might also prove useful if you wanted learners to carry out further research about earthquakes.

- Earthquakes 101 - National Geographic - YouTube (nearly 3 minutes)
- Earthquakes for Kids STEM - Learn why earthquakes happen and how to measure them - YouTube (just over 6 minutes)

Now, challenge groups of learners to build the tallest model tower they can that will withstand an 'earthquake'. Give them only the following materials:

- 3 sheets of newspaper
- scissors
- 30cm of sticky tape.

Explain that each tower will be placed on cardboard, which will be moved back and forth slowly for 5 seconds and then quickly for 5 seconds. This will be repeated until the tower falls and the group with the tallest tower that stays standing the longest in the 'earthquake' will be the winner.

To end this task, ask learners to use a reflection triangle to think about how they built their tower.

Links relevant to Wales

Here are some links that might be worth exploring when engaging with this activity.

Towers

- Top 15+ Tallest Buildings in Wales [2023 Guide] - Newspire
- Cardiff's planned 50-floor tower to be tallest building in Wales - BBC News
- Plans for Wales' tallest building in Cardiff given green light - BBC News

Earthquakes

- Wales, United Kingdom, Earthquakes: Latest Quakes – VolcanoDiscovery
- The complete Wales, United Kingdom earthquake report (up-to-date 2026) – Earthquake List
- Wales hit by earthquake that could be felt for miles – Yahoo News UK
- Earthquake recorded near reservoir in the heart of Eryri – Yahoo News UK
- Earthquake – Wikipedia

Other useful activities on Tirlun

Other activities on Tirlun that consider estimating height include:

- Why do we need lighthouses?
- Why are lighthouses important?

These can all be adapted for any location.