



Buildings and fire safety

INTRODUCTORY STEM CLUB LESSON: TEACHER GUIDE

Learning outcomes

- explore different types of buildings and their fire risk
- describe the impact that technology, design and people has on fire safety
- evaluate and design ways to create buildings with improved fire safety

Resources

- post it notes or equivalent for students to group types of buildings together
- poster material for final challenge on improving fire safety



Lesson activities

(1 hour duration; may be extended if appropriate)

| | Activity | Resources |
|--------------------------------|---|--|
| Activity 1 (5 mins) | <p>Explain that previously unconnected devices are being connected to bring about huge changes in how the world works. This is the basis of the 'Internet of Things'.</p> <p>You could also link in the video and an article on the Woolworths shop fire in Manchester 1979, which led to changes in the law on fire safety. These should be remote enough not to worry younger students, but check before using it.</p> | <p>Streaming videos:</p> <p>General introduction to the 'Internet of Everything'</p> <p>https://youtu.be/HTUSTejjzE</p> <p>http://www.bbc.co.uk/news/uk-england-manchester-20598600</p> |
| Activity 2 (10 mins) | <p>Students will think, pair and share what buildings they can think of that humans use.</p> <p>Think on their own for 2 minutes</p> <p>Pair and write some down 3 minutes</p> <p>Share as team and start grouping the buildings together.</p> <p>Students will hopefully identify different types of homes, commercial businesses, factories, entertainment and sporting buildings along with other types like space stations and castles.</p> <p>The categories are up to the students but you could prompt them to think of similarities between them such as</p> <ul style="list-style-type: none"> ■ residential (eg a terraced house) ■ commercial (eg shoe shop) ■ industrial (eg factory producing chocolate) ■ educational (eg primary school) ■ historical (eg stately home) | <p>Post it notes, cards.</p> <p>For think pair and share activity</p> |
| Activity 3 (10 mins) | <p>Students then need to evaluate the types of risks in terms of fire safety that each group of buildings has. This can be done by adding sticky notes on to the groupings.</p> <p>Students may need help in terms of the risks and what they can do to minimise them in a building.</p> <p>Prompts could include:</p> <ul style="list-style-type: none"> ■ what are the effects of fire (smoke/heat/flames) ■ escape routes ■ types of people ■ activities that happen in a particular building ■ flammable material or chemicals ■ sources of ignition ■ proximity to other buildings ■ types of fires ■ fire safety equipment or warnings they may have seen at school or home | <p>Sticky notes, cards</p> |

| | | |
|--|--|--|
| <p>Activity 4 (20 mins)</p> | <p>The main activity is put into the context of a team being contracted by the local council to improve the fire safety of a type of building in the local authority.</p> <p>The teams needs to pick a building type and advise the council on what they could do to advise fire safety.</p> <p>To help construct their feedback they can create a poster that identifies their suggestions to improve fire safety such as</p> <ul style="list-style-type: none"> ■ technology and the Internet of Things (devices equipped with sensors such as cameras or heat sensors; devices that provide communication such as Wi-Fi hubs; devices that receive messages such as mobile phones) ■ information for the people that use that building (signs and information) ■ ideas to improve safety in the building (smoke alarms / sprinklers / extinguishers / escape route markers – especially if linked via the internet) <p>Remember to encourage them to research technology and the Internet of Things.</p> <p>You could try to ensure the teams all pick a different building type to add variety.</p> | <p>Poster material, felt tip pens, paper</p> |
| <p>Activity 5 (15 mins)</p> | <p>Students report back on their findings by discussing what is on their poster with the rest of the STEM club.</p> | |

Additional notes

Given the nature of the topic there is a need to be sensitive about discussions on the types of fires and fires that have happened, the example given is nearly 40 years old it might be best to avoid more recent fires depending on the group.

