Overview

Learning objective
- To be able to execute an investigation and draw conclusions.

Learning outcome
- To plan an experiment, make accurate observations, and analyse data to make valid conclusions.

Book reference
- Chapter 3: Mr Wonka and the Indian Prince.

Cross-curricular link
- Science, Literacy, Numeracy.

Resources
- Picture of a chocolate palace, materials for chocolate experiment, risk assessment for the lesson.

Starter
- Give the children a picture of a chocolate palace.
- Ask the children to discuss in pairs:
  - Would you like to live in this house?
  - Where would you build this house and why?
  - What would happen if there was a very hot day? A rainy day?
  - How would you make sure this house will still be standing next year?
  - What kind of chocolate would you use for the different parts of the house?

Main teaching activity
- Read this extract to the class:

  “Prince Pondicherry wrote a letter to Mr Willy Wonka,” said Grandpa Joe, “and asked him to come all the way to India and build him a colossal palace entirely out of chocolate.”

  “Did Mr Wonka do it, Grandpa?”

  “Of course he did, Grandpa! But it was so hot in India that all the chocolate melted. Mr Wonka then had to make it all over again.”
‘He did, indeed. And what a palace it was! It had one hundred rooms, and everything was made of either dark or light chocolate! The bricks were chocolate, and the cement holding them together was chocolate, and the windows were chocolate, and all the walls and ceilings were made of chocolate, so were the carpets and the pictures and the furniture and the beds; and when you turned on the taps in the bathroom, hot chocolate came pouring out.

‘When it was all finished, Mr Wonka said to Prince Pondicherry, “I warn you, though, it won’t last very long, so you’d better start eating it right away.”

‘“Nonsense!” shouted the Prince. “I’m not going to eat my palace! I’m not even going to nibble the staircase or lick the walls! I’m going to live in it!”

‘But Mr Wonka was right, of course, because soon after this, there came a very hot day with a boiling sun, and the whole palace began to melt, and then it sank slowly to the ground, and the crazy prince, who was dozing in the living room at the time, woke up to find himself swimming around in a huge brown sticky lake of chocolate.’

• Explain to the class that we are going to investigate factors which make chocolate melt slowly, in order to help Prince Pondicherry make a better palace.
In groups, the children plan an experiment to find out how to make chocolate melt slowly.

The children decide which variables to use in order to compare the different rates at which chocolate melts.

Possible independent variables include:
- Type of chocolate (milk, dark, white, cooking chocolate, plain chocolate, caramel, different brands or types of chocolate bar),
- Size of chocolate,
- Location (for example: outdoors, in the fridge, under a light, over a candle),
- Addition of chemicals (for example: sugar, salt, water).

The children conduct the investigation in groups and record their results.

The children analyse their data by drawing graphs of the results and deciding which conditions make the chocolate melt the slowest. If different groups investigate different variables, they could feedback these findings to the class.

Introduce the problem with the ‘taps in the bathroom’ of Prince Pondicherry’s house. The children predict what would happen to the chocolate sink if hot chocolate came out of the taps, and then carry out an experiment or watch a teacher demonstration in which hot chocolate is poured onto a bar of chocolate.

Redesign Prince Pondicherry’s palace to prevent it from melting on a hot day using their earlier pictures.

Write a letter to Prince Pondicherry explaining why his house was poorly designed, giving recommendations for the design of his next palace.

Role play a news report about the Great Melting Disaster of Prince Pondicherry’s palace, including a special interview with a Scientist who explains why the disaster happened.

Role play a scene between Prince Pondicherry and Willy Wonka, in which Prince Pondicherry demands to have his money back and Willy Wonka explains why the palace melted.