

STEM from Home

Adaptations

Have you ever wondered how a camel can survive in the desert for days without water?

It is because the camel has adapted to the desert environment. Adaptation is the physical or behavioural characteristic of an organism that helps it to survive better in the surrounding environment.

This week your tasks include using Scratch to demonstrate different types of adaptations; solving a crossword puzzle; and designing a solution to an adaptation challenge.

Main Activity: **Adept Adaptations**

Introduction

You will develop a project that demonstrates the different types of adaptations in animals.

Let's get started! [Take a look at the program here.](#)

You can access [guidelines for the Scratch Project here.](#)

What you will learn

1. How to add, modify or remove characters (sprites)
2. How to add or modify backgrounds (backdrops)
3. How to add customized characters
4. How to make characters speak
5. How to change looks (costumes) of characters
6. How to navigate across the project

What You Will Need

Hardware

A computer capable of running Scratch or Scratch 3 software (either online or offline).

Software

Access Scratch 3 either online at <https://scratch.mit.edu/> or download from <https://scratch.mit.edu/download>.



Bonus Activities

Activity 1: Adaptation Crossword Puzzle

Introduction

This crossword tests your knowledge about adaptation.

Let's see how quickly you can crack the clues!

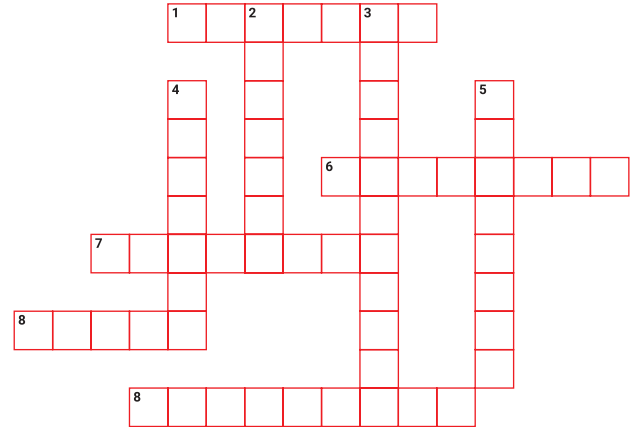
What is a Crossword?

A crossword is a puzzle which you solve by using the given clues to fill in the missing words across and down a given grid.

In case you get stuck you can use reference books or the internet to help you!

Put on your thinking caps and [let's get started!](#)

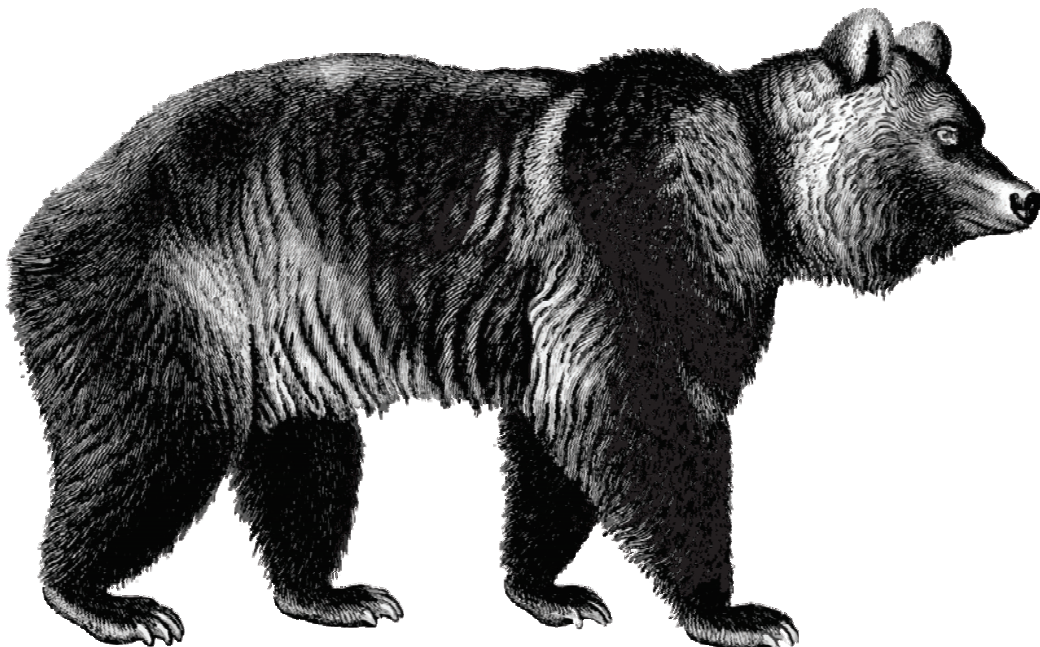
Check the solutions to the [Crossword activity here.](#)



Challenge Activity : The Big Shift

This week's challenge is to help Mr Black Bear get ready to shift to the Arctic Region to be with his cousin Polar Bear. Help him understand how he needs to adapt to the new environment.

Step 1: Begin by comparing and contrasting the behavioural, structural and physiological adaptations of the Polar Bear and the Black Bear. Use the internet to research and then create a **Venn Diagram** (the template is given in the activity sheet).



Step 2: Research the key characteristics of the Arctic Circle. You can take a look at this link: <https://www.nationalgeographic.org/encyclopedia/arctic>

Based on your research, identify the various adaptations which will be required for the black bear to survive in the extreme conditions. Fill out the table given in the activity sheet.



Final Design Challenge:

Draw the black bear with all the new adaptations. Label the adaptations. Write a note describing the kinds of adaptations made in order to ensure that he adjusts and survives the conditions in the Arctic Region.

Your project can be handmade or created digitally using [Docs](#) or [Presentation](#) software. You could also use the coding skills learnt in the main activity (Adept Adaptations) to create an animated presentation using [Scratch](#). The choice is yours.

[Access the activity sheet here.](#)