STEAM Challenges

Year 5 – Spring 2

Science

In Year 5 Science, we are learning to describe the changes as humans develop into old age.
Look at pictures of you growing up and create a simple timeline showing the stages of the human life cycle (baby, toddler, child, teenager,
For each stage, write one or two key changes that has happened to your body (e.g. growth, strength, energy levels).

Technology

Create a "Reaction Tester" Game Using Selection. In school, you learned how to use selection (the 'if…then' structure) and conditions to control what your Crumble program does. For this homework, you will use Scratch, which uses the same ideas, to make a simple interactive game.

Your challenge is to create a "Reaction Tester" in Scratch that checks how fast a player reacts when a sprite changes colour using an IF statement.

Detailed instructions on the next page

Engineering

We are learning about South America next term. South America has one of the longest rivers in the world called the Amazon. The Amazon River is huge, powerful and full of amazing wildlife, but there are no bridges crossing it. This is because the rainforest is full of swamps, wetlands and thick plants, which makes building a bridge very difficult. The river is also extremely wide and deep, and building in this environment would be very expensive. Most people in the area travel by boat, so a bridge is not always needed.

Your challenge is to **design a bridge that could cross part of the Amazon River, even though it is a very difficult place to build.**

1. Draw your bridge design. Label the parts clearly.
2. Choose materials that could work in the Amazon.
3. You could include: Wood, strong ropes, metal beams, concrete supports, cables (for suspension bridges).

Arts

To enrich your learning of cityscapes for this term, can you create a city scape that mimics Milton Keynes? This could be out of Lego/painting/sketching/silhouette . Here are some ideas.

Maths

To build your speed and fluency in arithmetic please complete these arithmetic questions. It marks it for you too!
https://mathsbot.com/primary/year5

Children in Year 5 can bring any STEAM Challenge work they complete into school or submit it on Seesaw.

What You Need to Do

1. Set up your game

•Choose a sprite (for example, a button, a character or a shape).

•Create **two costumes**:

- One normal
- One that shows the "GO!" signal (e.g., turns green)

2. Add a delay

Your game must wait a random amount of time before the signal appears.

Use:

•wait (pick random 1 to 5) seconds

3. Use selection to check the player's reaction

The player should press a key or click when the sprite changes costume.

Add an **if…then** block such as:

•**If** the sprite is showing the GO costume **when the player presses the space bar**,

then tell them how fast they reacted.

4. Measure reaction time

Use a timer in Scratch:

•Reset the timer before the delay

•When the "GO!" costume appears, start the timer

•When the player presses the key, display the time with a say block

5. Add feedback using conditions

Your program must respond differently depending on the reaction time.

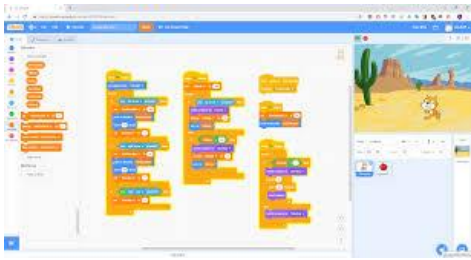
For example:

•**If** time < 1 second → "Amazing reaction!"

•**If** time < 2 seconds → "Good job!"

•**Else** → "Keep practising!"

This uses the same idea as Crumble: the computer checks a condition, *then* chooses an action.



Optional Challenge

Add one of the following:

•A scoreboard

•A "Too early!" message if the player presses before GO

•A motor-style animation (like spinning) to imitate outputs used with Crumble

•Sound effects when the player wins or makes a mistake

Success Criteria

✓ Uses **selection** (IF / IF ELSE)

✓ Includes a **condition** (e.g., checking costume or time)

✓ Includes **repetition** (forever or repeat block)

✓ Gives different outputs depending on the action

✓ Shows understanding of the ideas learned with **Crumble**: input → condition → output