5. Stop Driving Cars

Activity Structure – 45min

Activity	Timing
Warm up Game	5 mins
Introduce Story and Project	10 mins
Main Activity	25 mins
Final test & debug	throughout
Share with group	5 mins

Overview
Let's create an animation which encourages us to stop driving our cars and switch to bikes or walking.

Learning Objectives
• To use the loop/repeat block to create an effect.
• To start to personalise a project (encourage children to use their own ideas for each 'scene').

National Curriculum
• create and debug simple programs
• use technology purposefully to create, organise, store, manipulate and retrieve digital content
• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Warm up game: What do I do?
• Select all the cards for the blocks you will teach today.
• Stick them up around the room or lay them out on the floor/table.
• Either: Describe what one of the blocks does, e.g. *I am blue and I move my character forward,* or *I am green and I play a sound* and ask the children to touch/point to it.
• Or ask the children to work together to try and guess what each block does.
• Be positive and offer lots of targeted praise but do correct any misconceptions.

Introduction (discuss the project together, share ideas and create excitement)
• *Did anyone walk to the class today? Did you notice what the air was like? Did it feel clean or a bit smoggy? Why do you think clean air is important? What stops our air being clean?* Cars, building sites, factories, etc.
• *Is there anything we could do to improve the quality of the air we breathe*? Walk, scoot or ride a bike instead of using the car, electric cars, don't use wood burning stoves, plant more trees, have plants around the house, use public transport, holiday in the UK, etc.
• Show children the project. *What is making all the air pollution on the first page? Why is there less pollution on the second page?*
• *Let's look at the code. Which start/trigger blocks are used in this project?*
• *Why is the smog a separate character from the car? What would happen if they were all one character?*
• Hold up the flashcards for 'Repeat' and 'Repeat Forever'.
• *We can use the 'Repeat' block to specify how many times we want to repeat an action. This is called a 'counting loop'.*
• *We can use the 'Repeat Forever' block when we want something to repeat over and over again without stopping unless we tell it to stop. This is also called a loop.*

Project Plan

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Main Activity Key questions and teaching

1. Select the town background from the library. Use the Paint Editor to add details such as brown grass, smoke coming out of the buildings, grey sky, etc.

2. Add a second page to the project. Select a different background; it could be town or countryside. Make sure it looks 'cleaner' by having a blue sky, green grass, etc.

3. Go back to page 1. Select a car character from the library.

4. Record the introduction for page 1. *What could you say about the pollution on page 1?* [Start on Green Flag, Play Sound Recording, Go to Page 2]. *We'll need to add a 'Wait' block before it switches to page 2. How long do you think this should be for?*

5. *We want the car to drive across the screen while the introduction plays. How could we make this happen?* [Green Flag, Forward 1, Repeat forever].

6. Use the Paint Editor to draw the exhaust fumes character. Position it on the screen next to the car.

7. *We want the car and exhaust fumes to move at the same time, in the same direction. How could we do this?* [Green Flag, Forward 1, Repeat forever].

8. *Shall we also add a visual effect to the exhaust fumes, such as making it shrink & grow, or hide & show?* Let the children experiment with creating different effects. Remind them to add a 'Repeat Forever' block to the end of their code.

9. Let's add a second car. Follow steps 5-8 but make the second car drive across the screen in the opposite direction.

10. Encourage the children to try and code the second car and exhaust fumes with less support from you. *Who thinks they could code this car with hardly any help from me?*

11. Let's move onto page 2. *What characters could you use for this page? What might they be doing?* Jumping frogs or rabbits, people walking or kicking a ball, swaying flowers, butterflies or birds flying through the sky, etc.

12. Encourage the children to use their own ideas for the second page. Less confident children could use ideas from the example project.

Teaching points

- Before starting to code the second page it might be worth pausing and having a brief discussion about what the children could do and how they would code it. Children often learn best from each other.
- Encourage the children to think about how they would like their characters to move, and how they will code this.
- New coders or less confident children could copy code the example project or work more closely with the TA or tutor in a small group.

Possible Extensions

- Add some further smoke/fume characters to page 1. It could be floating in the air or coming out of chimneys.
- Children could also add a superhero observer to both scenes.
- The car characters could also bump into each other. Use 'Start on Bump' to change direction (but make sure the cars don't touch any smoke characters or they'll constantly be changing direction).

To Simplify

- Only use library characters.
- If the child chooses to include exhaust fumes, edit the library car so that the fumes and car are the same character.

Finishing up

- Invite 1-2 children to share their project with the group.
- Ask the other children to comment positively on something they liked about the projects which were shared.

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