Lower Key Stage 2 Activity Set

Activity set summary

In this set, children will develop their understanding of programming principles by learning how to use **repeat** loops, **if** statements and respond to changes in variables in a visual programming language. The activities focus on driving a delivery van around increasingly complex routes involving twists, turns and traffic lights. At the end of the set they can demonstrate their programming skills by creating a route for friends where they design their backgrounds and characters, and set up variables such as traffic lights to increase the level of challenge.

Resources

- Rapid Router app: www.codeforlife.education
- Resource sheets LKS2-S1-1 to LKS2-S7-2
- Levels Guide
- LKS2 Blockly cards
- Video links
- Glossary

Key

Vocabulary:
Programming terms appear in **blue**

Assessment:
Key questions appear in **red**

Children's previous experience

Children should have experience of the forward, right, left and simple **repeat** commands. If they have not used the app before, familiarise yourself with levels 1 to 28, and pick out suitable activities from the KS1 plans to create a preparatory lesson, before moving onto the following activities.

Teacher preparation

If you have not used the app before, set up your class accounts to record progress and save and share new challenges created by the children (see the step-by-step guide at www.codeforlife.education).

Learning expectations

In this activity set, the children will:

- Create **algorithms** to move on-screen vans around different routes
- Debug their programs
- Use **repeat** loops, and use **repeat** loops within other **repeat** loops (extension)
- Use a conditional **repeat** loop (**repeat until at destination**)
- Use **if… do…** commands
- Use **if… do… else if…** commands
- Understand simple variables (traffic lights green/red)
- Create **algorithms** to solve more complex challenges to find the best route, with traffic lights, turn right/left
- Design and create their own story for a partner involving characters, objects and creating a background
- Use logical reasoning to predict the outcome of a program which involves **repeat** and **if** statements

Links to the National Curriculum for Computing PoS

Pupils should be taught to:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals