Computing – Coding – Object Properties

Year Six

random

numbers

property

parameter

objects

variable

location

events

values

friction

direction

angle

heading

x-co-ordinate

y-co-ordinate

simulation

Important information

What is coding?

Coding is the method of giving a computer instructions to perform a specific task. You may also hear coding referred to as software programming or computer programming. These instructions are communicated using a language that computers can understand, like visual blocks, JavaScript, Python, HTML, and CSS. Code fuels our world's technology, from microprocessors in everyday items like refrigerators and water heaters to sophisticated programs that operate our cars and buildings.Learning to code has become an essential element of a child's education and a great way for them to express their creativity.

Why should kids learn to code?

As technology becomes more prevalent in our lives, coding is becoming a valuable- if not necessary- 21st century skill, revolutionising every aspect of today's world – think self-driving cars, robot-assisted surgery, social media, banking, the environment, and more. Coding empowers kids of all ages to become makers of technology by tapping into their ability to bring their imagination to life. Kids and teens who code often excel at school in Maths, Science and even Reading whilst also developing a skill that will prepare them for future job opportunities.

	Game/learning question	What you will learn	Learning Review
1	Don't feed the birds Which object properties were you able to incorporate into your coding?	You will discuss the concept of object properties, including x- and y- co-ordinates, speed and headings, and how 'parameters', or 'values', can be set for these. You will recap your knowledge of random numbers and how to use these in their code as well as devise x- and y- co-ordinates. You will be challenged to writing the code for the other birds independently or in pairs.	
2	Rocket-blaster Which of the rocket's properties will we need to know?	You will set the co-ordinates of the laser to match the two lines of code that allow you to 'get' the x- and y- co-ordinates of the rocket. You will recap the idea of friction before adding friction and key press events to control the rocket's speed. You will discuss the use of negative numbers for movement in the opposite direction and add key presses to change the angle and heading of the rocket.	
3	Football fun What objects might we include in a computer simulation of a football game?	You will predict what code will do before your teacher runs it and you will be given the opportunity to experiment with dragging the pointer at different speeds and in different directions to see what happens. You will know how to use a variable to display the speed, to make it easier to see what is happening. You will add new variables to keep track of the ball's x- and y- co-ordinates at the start as well as add code to the conditional hit events to make the ball stop.	
4	Sheepdog How can we set a speed for the sheep? How can we make it move faster than the dog?	You will build the code to make the dog move at the same speed and heading as the pointer. You will also want the sheep to run away when the dog hits it. You will make predictions about what will happen when you run the code. including how fast the sheep will move. You will need to look at the code and identify the blocks that determine the sheep's speed. As you run the code, the sheep should move slightly faster than the dog.	
5	Golf game What do the conditional events (hit events) in your code do?	You will recall that, in computer programs, values of actions such as the speed or direction of a pointer drag are also known as 'parameters', and that we can write code that will detect these and pass them on to other objects. You will apply your learning from Lessons 1-5 to the activity in today's lesson.	

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