**Scratch Motion Challenges**

**You will be learning how to control the movement of sprites on the stage. By the end of the sheet ALL students will be able to move sprites in a particular direction by a particular distance. MOST students will be able to use co-ordinates to position sprites accurately. Some students will be using directions, co-ordinates and distance confidently.**

**Objectives: F should complete tasks 1 to 4. S should complete tasks 1 to 5. C should complete tasks 1 to 5 and some of 6 to 8. E should complete ALL tasks.**

**The Scratch Motion toolbox contains all the tools that you need to move sprites wherever you want them to go. Just drag the instructions you need into the programme area and join them together!**

In the programme area, there have already been placed some extra instructions from other toolboxes for you to use when needed:

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| --- | --- | --- | --- |
|  | This is the Start instruction; all other instructions connect below this one. |  | These are used to hide and then show the sprite |
|  | slows things down so that you can see what’s happening |  | these control a pen so that the sprite can draw as it moves |
|  | Leaves an imprint of the sprite |  | removes all pen lines ready for the next drawing |

**Here are the tasks, they start easy and then get harder (tick off each one you’ve done as you go)**

1. Make the bee sprite move 100 steps along the x-axis to the right. Then it must wait. Then make it move back to the centre again (use ).
2. Make the bee move 200 steps along the x-axis to the right. Then it must wait. Then make it turn round to face left (use ) and move back to the centre again.
3. Make the bee glide to the top of the y-axis (use ). Then glide to the bottom of the y-axis. Then glide back to the centre.
4. Make the bee glide to the point (100,100). Lower the pen. Make the bee turn to the left. Make it glide to (-100,100). Make it glide to (-100,-100). Make it glide to (100,-100). Make it glide back to (100,100). Lift the pen up and return to the centre. (You should have drawn a square).
5. Make the bee glide to the top of the y-axis. Then lower the pen. Then glide to the far left of the x-axis. Then glide to the bottom of the y-axis. Then glide to the far right of the x-axis. Then glide to the top of the y-axis again. Lift the pen up. Glide back to the centre. (It should have drawn a diamond shape).

Harder still…

1. Place a bee imprint on every place on the background where two lines cross (there are 15 places).
2. Draw anywhere a perfect equilateral triangle of side length 150. Hide the bee when done. (hint: internal angles are 600, but the bee will need to turn through the external angle).
3. Now draw a perfect hexagon (don’t be afraid to use paper to make a sketch!)