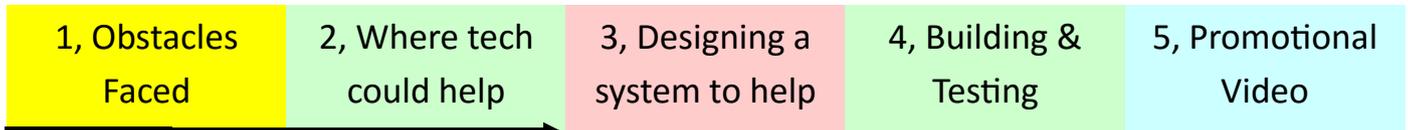


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Technology supported athletics



Learning Path

Resources
 Olympic slides, Blind big idea sheet, deaf big idea sheet, Distance sensor programming help card, Power Maker Card, traffic light maker card, buzzer maker card, sensor maker card, , Crumble board, USB cable, Crocodile clips, Traffic light Crumb, Buzzer Crumb, Distance Sensor HC-SR04, 3AA battery holder, 3AA batteries. *You could allow pupils much more choice of crumbs if you have the kit.*

Program Aim Design, create, program, debug, test and video a device that will help disabled athletes to participate in athletics or training for athletics.

National Curriculum Coverage

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, including collecting, analysing, evaluating and presenting data and information**

1, Obstacles Faced

Introduce the project by using the Olympic slides to help pupils think through the range of athletics events and the difficulties disabled athletes have to overcome to participate.

Focus them on helping blind or deaf athletes as we have technology (buzzers or lights) that might help.

2, Where tech could help

Slide 5 encourages your pupils to work with a partner to come up with a big idea. To do this they will be focussing on the most important part of the problem (abstraction)

I look for a range of solutions to the same problem

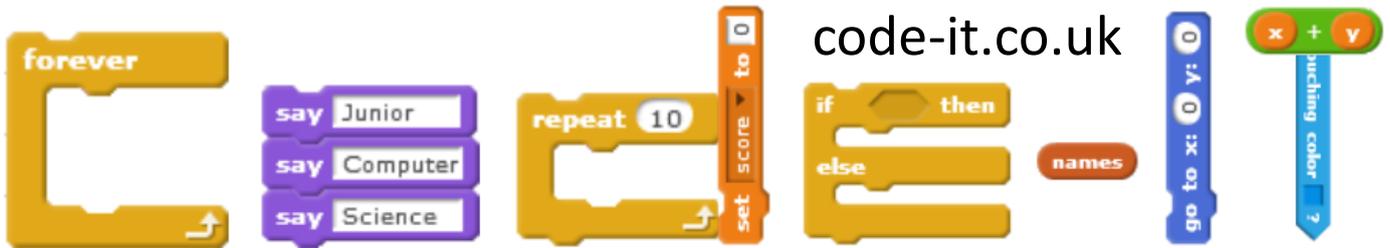
They will need to define the problem clearly and there is an example on the sheet.

I can contribute useful ideas to a partner or group

Encourage them to try and think of as many different ways of solving their problem before they start to design a circuit

I can discover the most important part of a problem (abstraction)

Ask them if they are contributing meaningfully with their partner?



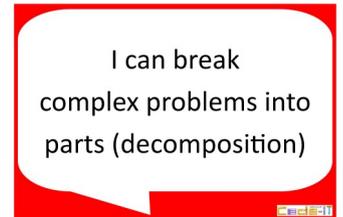
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3, Designing a system to help

Use slide 8 and 9 to help pupils break their big idea into parts and then turn those parts into code. Give them time to do the same thing with their big ideas.

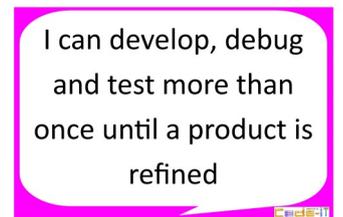
Give out the circuit diagrams (blind or deaf ones) and ask pupils to plan their circuit using the maker cards to help them decide where the wiring will go. There is a correct version on code-it.co.uk/techathletics



4, Building and testing

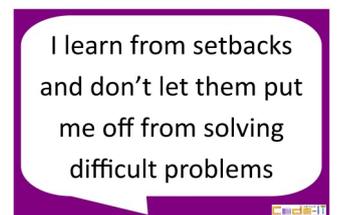
When students have created a finished circuit diagram they can collect the electronics and proceed to assemble and program it.

There is a sensor help card if they choose to create something that uses the distance sensor. A great motivation is to staple this shut and tell pupils that it has a solution inside but you are sure they won't need it.



Electronics

Even some of the most sensible students forget that they need to keep the crocodile clips insulated and that the battery pack may need to be switched on.

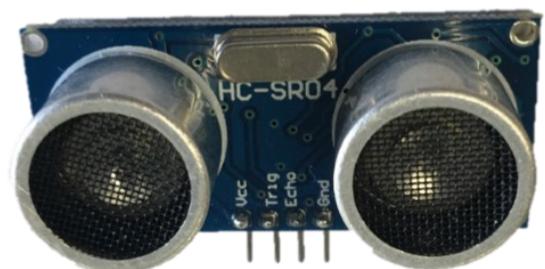


5, Promotional Video

Why not make a promotional video using iMovie or other tablet video editing software. Can they sell their product

6, Evaluation

Does it work? What did they think it would do? How could it be improved? Can they design a housing to protect the electronics?



Distance Sensor

