

## Dash the Delivery Robot

A series of 3 hour long lessons to introduce the Dash robot and work through the design process.

### **Curriculum Links Technologies**

#### **Digital systems**

Digital systems and peripheral devices are used for different purposes and can store and transmit different types of data (ACTDIK007)

Use simple visual programming environments that include a sequence of steps (algorithm) involving decisions made by the user (branching) (ACTDIP011)

Work with others to create and communicate ideas and information safely, using agreed protocols (netiquette) (ACTDIP013)

#### **Define a sequence of steps to design a solution for a given task**

Identify and choose the appropriate resources from a given set

Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms

Select, and safely use, appropriate components and equipment to make solutions

Use criteria to evaluate and justify simple design processes and solutions



## **Lesson 1**

**Introduce the problem** – A document needs to get from one teacher’s desk to another. The teacher can’t leave the room and the students are not to be trusted. It is a very important A4 size document that can’t be folded or damaged.

**Brainstorm solutions** – As a whole class brainstorm solutions to the problem

At this point my class realised we actually had two problems

1. How will the document be transported
2. How will the document be kept safe

If a robot is not offered as a solution - get Dash and show students - Hopefully they will take the bait.

### **Introduce Dash and the Blockly App**

Show the whole class Dash and trial some simple code using Blockly

A had my class sit in a circle and had Dash move forward and back, turn around, make sound and flash lights inside the circle.

### **Make a Plan**

Where to next? As a class decide on the steps for the next lesson

My class list

Make a map – make measurements and highlight obstacles

Code Dash to get to Miss Kings desk and announce his arrival

Design a document holder



## Lesson 2

### **Coding, testing, designing**

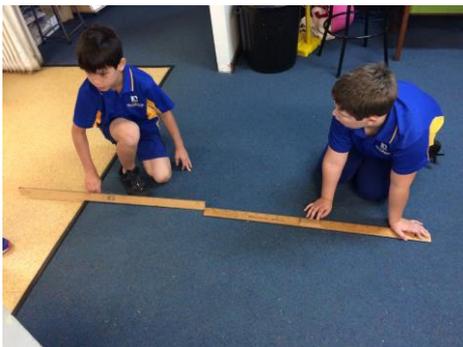
Review last lesson – Go through the plan created at the end of the lesson and discuss each step.

Break students into groups of three and hand out the two handout sheets “Delivery Dash” and “Design Process”

Remind students that they will not be able to code before they have made their map. (How will they know the distances?)

Once students have made their map and written their code. Use Dash to test the code. Students waiting to test their code should begin to design their document holder. Students should be presented with the materials before beginning their designs

We mostly used Lego because it can easily attach to Dash’s earrings



## Lesson 3

### **Putting it all together**

Hopefully by this time students have tested and debugged their code and use this session to construct their document holders.

Start with a sharing session – What problems have you envisioned designing the document holders? Have you come up with any solutions?

Students then construct the document holders and test them using Dash and the code written in the previous session.

Notice, record and fix any problems with code or design flaws