

# Digital Technologies - Satisfactory - Years 3 and 4

## Portfolio summary

This portfolio of student work shows that the student can describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes (WS1). The student explains how the same data sets can be represented in different ways (WS2).

The student defines simple problems and designs and implements digital solutions using algorithms that involve decision-making and user input (WS3). The student explains how the solutions meet their purposes (WS3) and collects and manipulates different data when creating information and digital solutions (WS2). The student safely uses and manages information systems for identified needs using agreed protocols (WS3) and describes how information systems are used (WS1).

## Worksheet: Digital systems

### Sample summary

Students have been collaborating, creating and communicating ideas, information and solutions face-to-face and online via a class wiki. They were asked to identify hardware and software used throughout the year and describe other purposes for which they can be used, and to sequence the steps to upload their file to their learning management system folder.

### Achievement standard

#### Subject

#### Learning Area

By the end of Year 4, students describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes. They explain how the same data sets can be represented in different ways.

Students define simple problems, design and implement digital solutions using algorithms that involve decision-making and user input. They explain how the solutions meet their purposes. They collect and manipulate different data when creating information and digital solutions. They safely use and manage information systems for identified needs using agreed protocols and describe how information systems are used.

#### Systems worksheet



### DIGITAL SYSTEMS

1. Think about the information reports, data collection, presentations and wiki you have made this year using digital technologies. Remember your plant life cycle, interviewing a grandparent, recording data on rubbish in the playground.
2. Complete the table below.

#### Hardware and peripheral devices

Name of hardware/device	What did this hardware help you do?	What else can this hardware help you do?
Printer	Print my report on growing seeds	Print photos
Camera	Take photos of rubbish in playground.	Photos of things I did to make a toy.
robot	Learn to code	learn about maps

### Annotations

- 1 Annotation 1**  
Names some computer hardware or devices
- 2 Annotation 2**  
Recognises another use for the identified hardware or device
- 3 Annotation 3**  
Describes how they have used hardware or devices

#### Software

Name of software	What did this software help you do?	What else can this software help you do?
Word	Write report	Write a report for the newsletter
Power point	Make my talk on rubbish	
Doodle apps	Learn my maths better	Learn stuff with other apps

Select the boxes (steps) and arrows below and drag them into the correct order to show how to upload this document to your personal folder.



### Annotations

- 1 Annotation 1**  
Names some common software applications
- 2 Annotation 2**  
Recognises an alternative use for the identified software
- 3 Annotation 3**  
Describes the purpose of the software
- 4 Annotation 4**  
Sequences the steps to save a file using the school's learning management system

## Data project: Clean school

### Sample summary

Students collected, collated and recorded data about rubbish in an assigned area of the school. They represented data as a series of graphs and on a map. They enhanced the map by adding images and a

key.

## Achievement standard

### Subject

### Learning Area

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### Data presentation

Digital 34 WS2 AT

Watch later

Share

**What Rubbish!**

**DAY 1**

Key

	Bins
	Food scraps
	Plastic
	Paper
	Drinks

Prep and Year 1 area

JUNIOR SCHOOL GLASS

## Digital project: Rapunzel

## Sample summary

Students were presented with the problem of rescuing Rapunzel from the tower in 60 seconds. In teams, they designed, built and programmed a device that would allow the prince to safely rescue Rapunzel. They were asked to use tilt and motion sensors to control the device, use appropriate sounds and backgrounds, create a timer, and use simple engineering principles and systems. The device was expected to be sturdy, have at least three safety features and consider the user. Each team was asked to demonstrate their model to the class showing how they carried out the rescue and explaining the science, engineering and programming choices involved.

## Achievement standard

### Subject

### Learning Area

By the end of Year 4, students describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes. They explain how the same data sets can be represented in different ways.

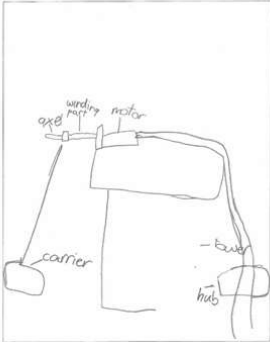
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### Rapunzel portfolio

**Saving Rapunzel from the tower**  
Write the design brief in your own words using Word and insert into the document.  
 The prince wants to save Rapunzel from the tower. He has 60 seconds. We need to build a 1 kg robot to save them.

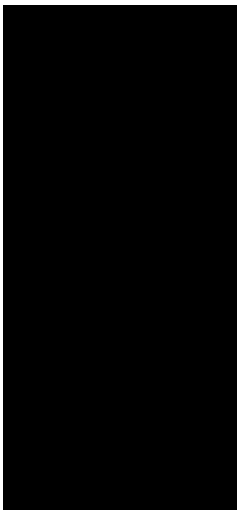
**1**

Draw and label your model (use pencil). Include the safety features, gears, pulley, motor, tilt sensor and motion sensor in your answer.



### Annotations

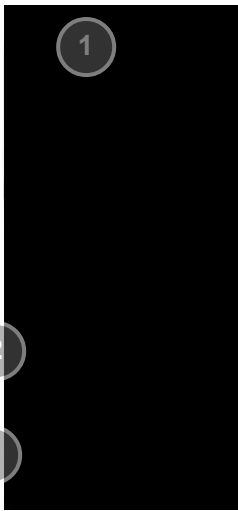
- 1
**Annotation 1**  
 Defines the problem to be solved
- 2
**Annotation 2**  
 Draws a labelled diagram to describe key features of the robot



Explain how your model works. (Use the following words: gear, pulley, motor, tilt sensor, motion sensor and safety features).

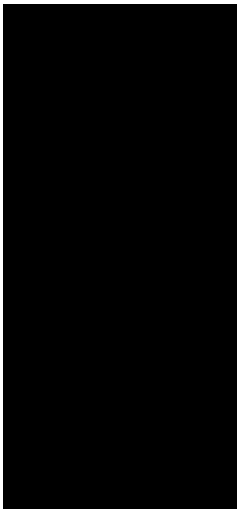
A string attached to the carrier around around a twisted part pulled up the carrier. It waits because of a timer in the program and goes winds again.

Insert an image of your program code and explain it.



**Annotations**

- 1 Annotation 1**  
Explains in simple terms how the robot works
- 2 Annotation 2**  
Selects simple coding elements to program the robot
- 3 Annotation 3**  
Captures a screen shot of the program code



What did you like best about your model and how it worked?

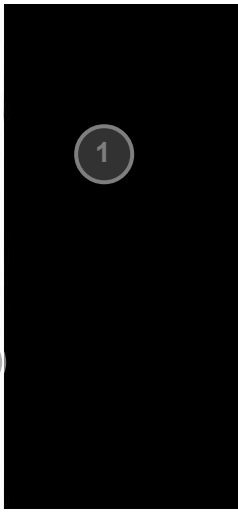
Rapunzel and the Prince had time to get off and on.

What did you find difficult about saving Rapunzel?

At first it would not wind up. If got tangled up in knots and wouldn't wind around. It couldn't go fast enough.

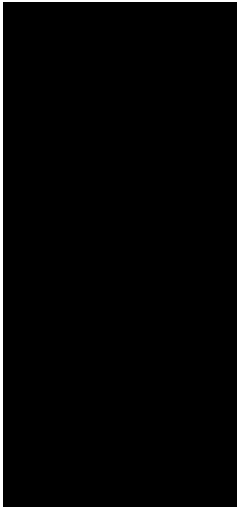
If you had more time how would you improve on your attempt to save Rapunzel?

I would make a motion sensor to know when Rapunzel got on. I would also make it go faster so it could only use less than one minute.

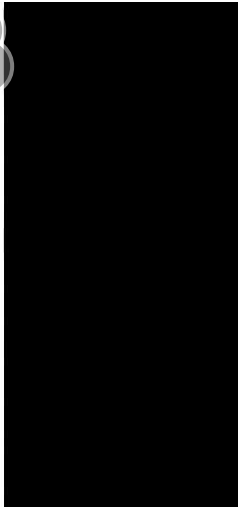


**Annotations**

- 1 Annotation 1**  
Identifies what worked well and any challenges
- 2 Annotation 2**  
Describes how this digital solution could be improved



Insert an image of the model you created.



**Annotations**

- 1 Annotation 1**  
Creates a robot (digital solution) that meets the identified problem
- 2 Annotation 2**  
Uses a peripheral device (camera) to take a digital image and inserts it into a document