STUDENT WORKBOOK

Digital Technologies:
For Years 5 - 6: Book 2

By Magda Parker

Contents

To access videos and websites providing background to this book go to:

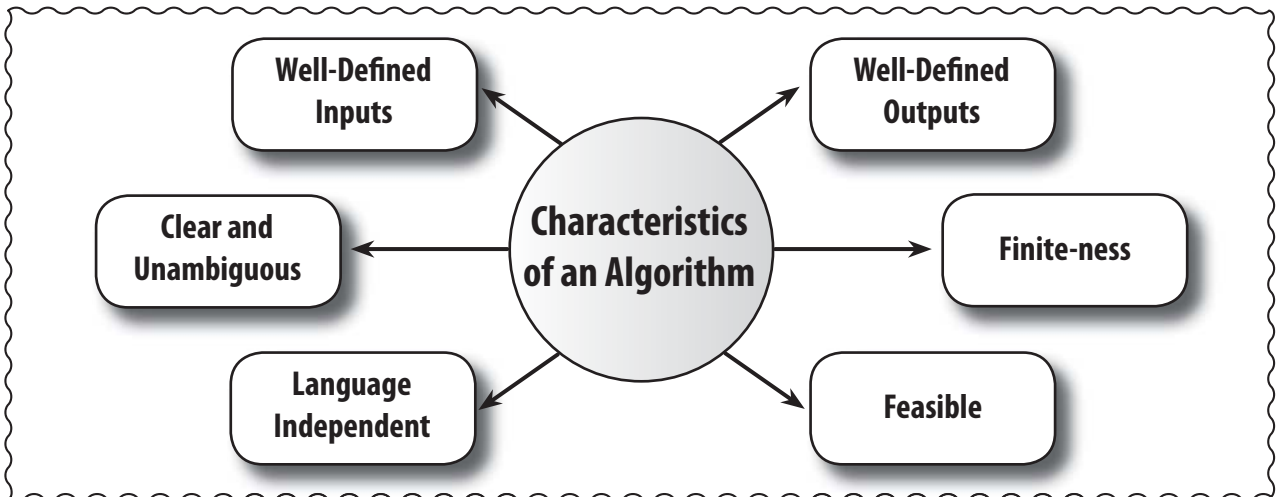**https://www.readyed.net/digital-technologies-for-years-5-6-book-2/**

Pages that are linked to online content will have this symbol on them:

What is an Algorithm?

An algorithm is a set of instructions to complete a task. Our everyday lives are full of algorithms, like the rules for playing a board game, the steps in a recipe, or just the correct way to wash our hands. In fact, a computer program is just an algorithm for a computer.

Basically, an algorithm is a list of steps you can be follow to perform a task.

```
                    Well-Defined              Well-Defined
                      Inputs                    Outputs

   Clear and              Characteristics
  Unambiguous             of an Algorithm          Finite-ness

                    Language
                    Independent                  Feasible
```

What are Algorithms in Coding?

In coding, algorithms are of lines of code put together to solve problems. These problems can be about anything, like sorting a list, or finding information. They can be written in any language, but they must give the right answer and work properly with different inputs.

Example of an algorithm in coding:

```
1
2   def findMax(list):
3       max=0
4       for number in list:
5         if number > max:
6             max = number
7       return(max)
```

Coding algorithms are useful because they can solve big problems much more efficiently than humans. For example, some problems are too complex to solve mathematically, but an algorithm can easily solve them.

Interesting Fact

The word 'algorithm' comes from the name of the mathematician Al-Khwarizmi's whose name was translated into Latin. Al-Khwarizmi lived in Persia in the 9th century and was a very important mathematician. He also introduced the Hindu decimal system and the use of zero into Arabic mathematics.

Activity 4 | Quiz Show Interview

Imagine you are a quiz show host and are questioning a player. Write down two factual questions that you know the correct answer to. Give three possible answers where only one is correct. These would flash up on the screen for the contestant to choose from. If the player chooses the correct answer, continue, and ask them the second question. Otherwise, they need to try again.

Now make your own question-answer game with its different scenarios into a simple flowchart as shown in the example.

Question A: Which is only country in the world where kangaroos live?

China → incorrect

Italy → incorrect

Australia → correct

Question B: What is the Noongar word for country?

Boodja → correct

Yongka → incorrect

Kaya → incorrect

Player Won!
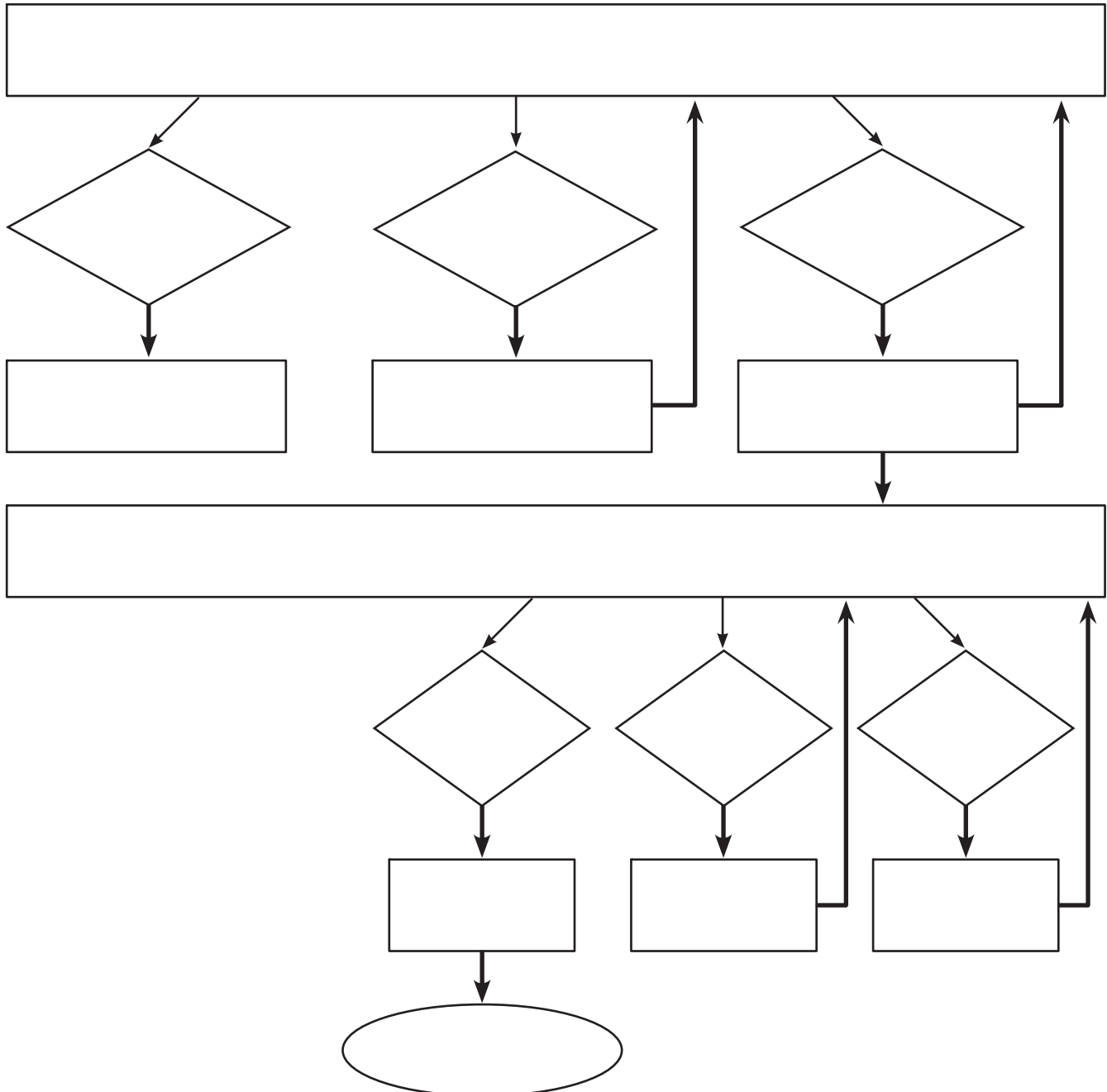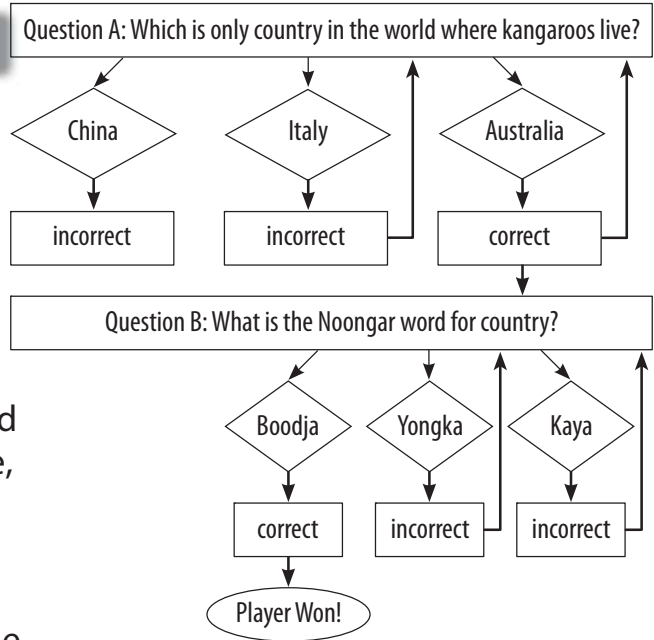
❏ Here is a typical school's ICT agreement. Examine it and compare to your own rules:

INTERNET AND iPAD USAGE AGREEMENT YEAR 5 - 6

I agree to follow the expectations below when I access ICT at Jordania Primary School:

• *I will access digital technologies only with the permission of a teacher.*
• *I will not let anybody else know my passwords or logins, except for my parents and teachers.*
• *I will not let others log into and/or use my student accounts unless it is with the teacher's permission, and I will not access other people's accounts. I know that I am responsible for anything that happens when my accounts are being used and I will tell my teacher if I think someone is using my account.*
• *I know that the school and the Department of Education may see anything I send or receive using the school's internet or online file storage services.*
• *I will make sure that any communication that I send or any work that I wish to have published is polite, carefully written, well presented and is not harmful to other students (i.e., it does not contain material that is deemed inappropriate for a primary school context, rude, abusive in nature or promotes illegal activities or violence).*
• *If I use other people's work (including items taken from the Internet) as part of my own research and study, I will always acknowledge them.*
• *I will obtain permission from the copyright owner for the use of their works if I include an entry for a competition or any other uses other than for private research and study.*
• *If I find any information that is inappropriate or makes me feel uncomfortable, I will inform a teacher.*
• *I will not reveal personal information, including names, addresses, photographs, credit card details and telephone numbers of myself or others.*
• *I will not damage or disable devices, systems or networks of the school, the Department of Education, or any other organisation.*
• *I understand that my teacher or members of staff may access my device at any time they deem necessary.*
• *I will not take images or recordings (audio or video) of others without the Teacher's permission.*

I Understand:

• *If I use the Internet or any ICT device in a way that I should not, then I may lose future access to devices at school.*
• *I may be liable for misuse of the device and the police may be contacted.*
• *Any damage to Jordania Primary School digital technologies that is deemed deliberate must be covered by my parents/carers.*

I agree to abide by the Jordania Primary School ICT Acceptable Use Agreement and accept these Guidelines.
I understand that if I break any of the expectations outlined in the agreement that the principal may take disciplinary action in accordance with the Department's Behaviour Management in Schools policy.
Name of student: . . . . Signature of student: . . . . Date: . . . .
Signature of parent: . . . . Date: . . . .

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1. What do you think about the agreement? Is it fair or not fair? Why/Why not? _____

_____

_____

2. Which parts do you agree with/disagree with? _____

_____

_____

3. What are the similarities and differences between your own agreement and this school's agreement?

Similarities	Differences

☐ Follow these directions and answer the questions to learn how permanent online information is.

1. Draw a self-portrait on a piece of paper and colour it.

2. Now draw a portrait of your favourite actor/ actress and colour it.

3. Cut or rip both pictures into 10 small pieces and mix them up together.

4. When you have finished, try now to get ALL the pieces of your self portrait back in around 1 minute.

5. Now, try to glue back together the pieces of your portrait that you have managed to get back into this square:
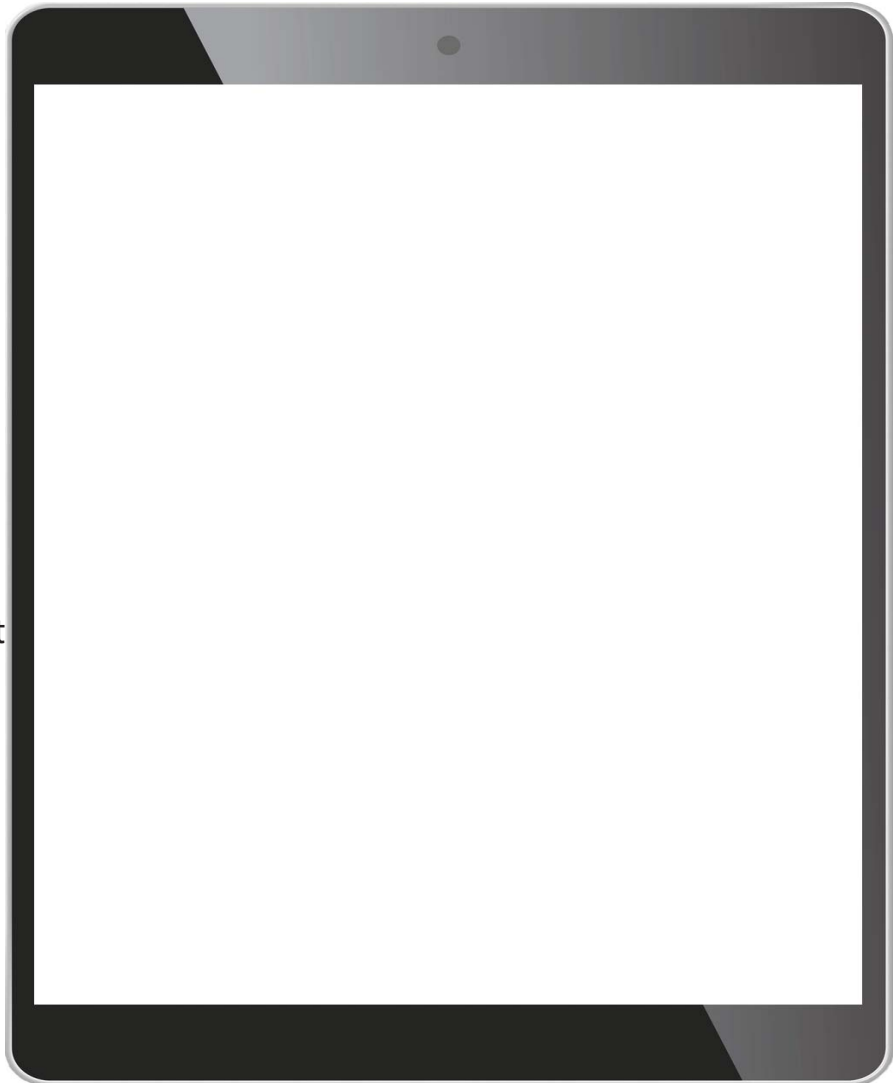
What were you asked to do? _____

_____

What happens when you share a photo or piece of information online? _____

_____

_____

How does this activity relate to sharing information online? _____
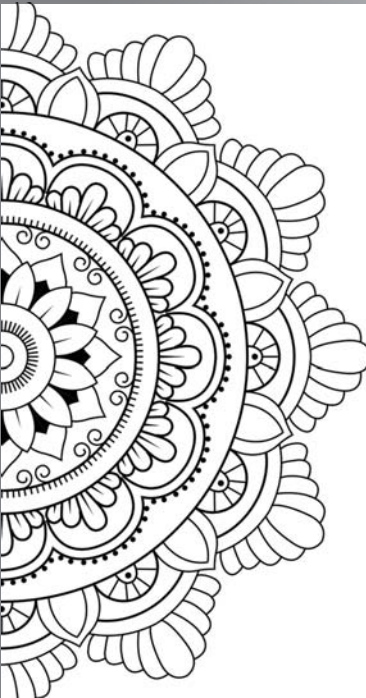
_____

_____

Think About:

Did you know that if you share a photo on the internet, a copy of that photo is stored on other computers? How do you think this relates to the activity you've just done?

❑ Draw and explain 6 different strategies you can use when you experience unfriendly behaviour online.

❑ Create a cyber self-care mantra using good self-care strategies that you think might work for you.

All is well when I

Activity 24 — Design An App

☐ Choose a natural disaster from the list below and design an app that provides early warning information about it.

- Cyclones, hurricanes and typhoons
- Earthquakes
- Floods
- Landslides and mudslides
- Severe weather
- Tornadoes (twisters)
- Tsunamis
- Volcanic eruptions
- Bushfires

☐ Explain the app's purpose, information and functions below. Design a logo for your app.

App Logo and Name:

Purpose of the App:

_____

_____

_____

_____

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_____

_____

Information:

_____

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Functions:

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