



**PHOTOCOPY
MASTERS**

Digital Technologies: For Years 3-4



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

<https://www.readyed.net/digital-technologies-for-years-3-4/>

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





Parts of a computer and how they work

A computer is a device that helps you work with data or information. It processes, stores, and displays huge amounts of data quickly that are easily accessible. Computers are used daily for work, school and home helping to make life easier and connect to information and networks all around the world using the internet.

These electronic devices rely on electricity to charge their batteries. The data is carried in small electric currents. These currents represent 0 and 1 that stands for all the data stored and displayed on the computer such as letters, numbers etc. This is a language used to write instructions for computers by programmers.

Parts of a computer:

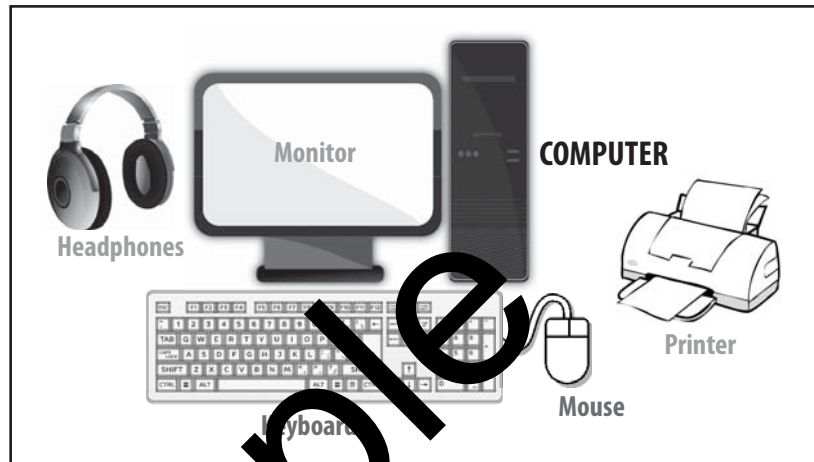
Monitor: screen to display the information on.

Mouse: To control and move the cursor on the screen.

Keyboard: To type letters, numbers and other functions.

Speaker/ Headphones: Amplifies the sound from the computer to listen to.

Printer: To print out information collected/created on computer. Printers often scan and photocopy as well.



Computer: The working brain of the computer that accesses data, connects to the internet, reads, and writes information to be stored, etc.

Microphone: Audio device able to input audio and communicate through microphone.

Controller: Gaming device able to control characters and play games on devices.

Peripheral Devices

Peripheral devices are external pieces of hardware that connect to a computer. This can be done either using a cable, most commonly a USB cable or wirelessly such as through Bluetooth. Peripherals can allow a computer to do more things and interact with the world around it. For example, a camera allows a computer to take photos or videos, and a printer allows a computer to print digital data onto physical paper.







Peripherals are separated into either **input** or **output**. Input peripherals take in data from the outside world, and put it into the computer, while output peripherals take data from the computer and put it into the physical world. A keyboard, for example, is an input peripheral, because it takes in the data of which letters are pressed and puts it into the computer to type. Other examples of input peripheral devices include computer mouses and microphones. One of the common output peripheral devices is a monitor because it takes the data on the computer, and shows it on a screen to be viewed. Another example includes speakers which output sound.

A special type of peripheral is an input/output device, which can both input and output information. These are commonly used to store data from the computer. A common example of this is a USB drive, which connects to the USB port and can store data such as files and images from the computer. When a file is moved to the USB drive, it acts as an output peripheral as data is moved from the computer to the USB drive. And when a file is moved back to the computer, the data is moved to the computer from the USB drive.

Activity 3 Peripheral Devices 1



Name each of the peripheral devices shown below and write a definition for their job.

Image	Name	Definition
		
		
		
		
		
		

Sample

Can you think of any other peripheral devices? List them below.

Activity 6 What Is Digital Data? Word Search



Find the digital data words in the word search below.

A	L	Z	C	D	S	I	W	Y	K	A	M	L	X	G
Q	O	P	F	I	W	O	Q	P	G	F	P	G	Q	T
M	S	Y	L	M	P	T	E	M	D	R	Q	T	T	R
M	G	U	Z	A	M	N	L	D	I	M	S	A	W	A
C	O	T	C	G	H	R	X	N	I	B	E	O	I	K
H	Z	N	J	E	M	L	T	T	V	V	G	G	Y	B
O	T	U	I	S	H	E	J	E	B	Y	V	U	X	U
C	R	F	B	T	R	S	D	N	U	S	M	E	F	
A	K	D	N	Y	O	Y	R	N	E	T	R	S	C	S
K	E	Y	B	O	A	R	D	S	C	W	U	F	U	I
G	M	D	D	J	Z	N	T	F	X	O	E	C	D	U
A	T	Q	Z	O	U	Z	T	L	M	W	S	I	X	L
T	E	K	N	W	K	V	P	I	L	O	T	P	X	B
A	O	N	W	H	N	T	F	M	Y	A	N	H	R	
N	L	M	K	O	R	X	C	V	L	H	V	P	Z	I

KEYBOARD

MONITOR

IMAGES

PRINTER

SOUNDS

VIDEOS

FILES

MOUSE

After finding all the words above in the word search sort them into what is digital data and what are peripheral devices:

Digital Data	Peripheral Devices

Activity 9 Binary Numbers 2



- Using the binary numbers before and after as clues work out the missing binary numbers that represent these decimal numbers:

Decimal Number	Binary Equivalent	Decimal Number	Binary Equivalent
0		8	
1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	

- Challenge: What is the binary equivalent for:

16 _____

27 _____



- Convert these two binary numbers back into decimal:

11111111 _____

1001100 _____

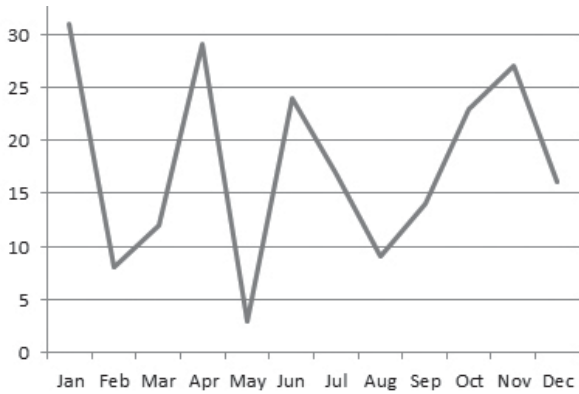
Activity 10 Representing Data 1



- Here are 3 different types of data that are presented in different ways. Examine each graph and discuss the advantages and disadvantages of using this type of representation of the information.

Data Set 1: Student Birthdays (Line graph)

31	8	12	29	3	24	17	9	14	23	27	16
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec



Advantages of line graph	Disadvantages of line graph

Data Set 2: Favourite Fruits (Pictograph)

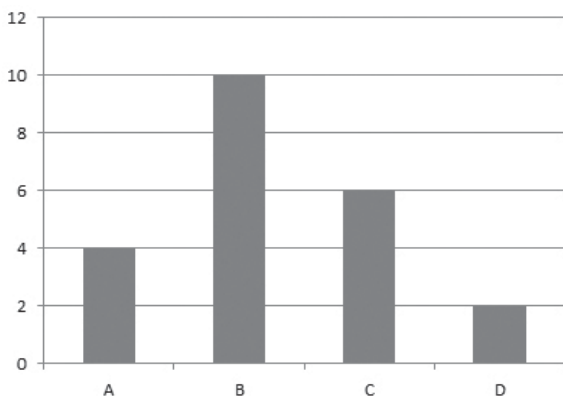
Apple - 5, Banana - 3, Orange - 2, Pineapple - 1.

Fruit	Votes
Apple	
Banana	
Orange	
Pineapple	

Advantages of pictograph	Disadvantages of pictograph

Data Set 3: Students' Grades (Bar Graph)

A - 4, B - 10, C - 6, D - 2.



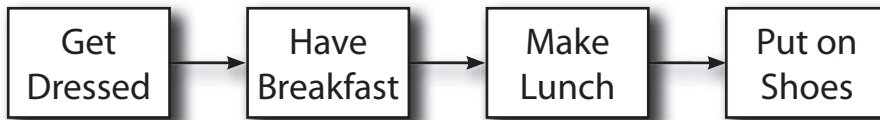
Advantages of bar graph	Disadvantages of bar graph

Activity 14 Advanced Algorithms



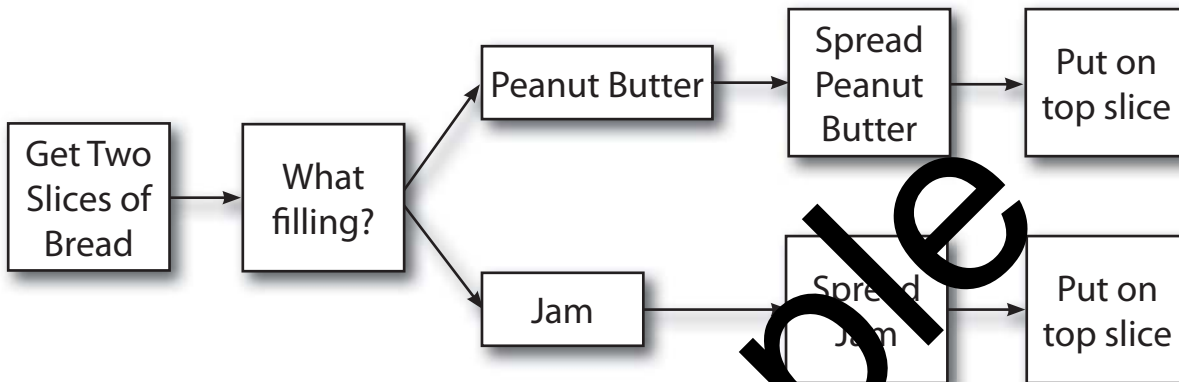
Label the following algorithms as either simple or branching.

1. Getting ready for school



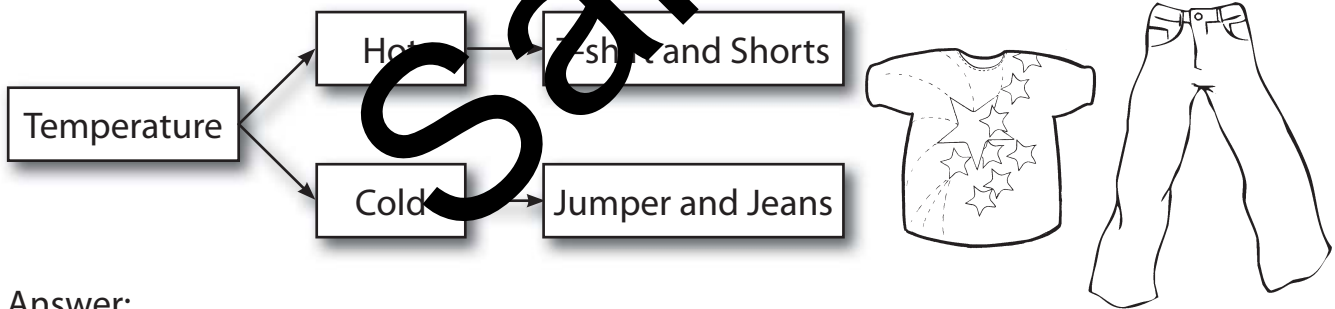
Answer: _____

2. Making sandwich, choose between peanut butter and jam.



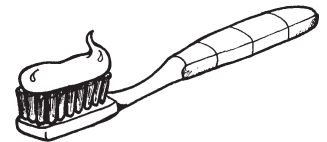
Answer: _____

3. Choosing Clothes



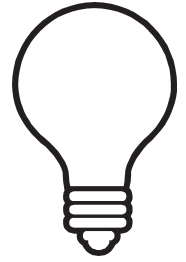
Answer: _____

Fill in your own algorithm to brush your teeth with words and images. Label it as "Simple" or "Branching".

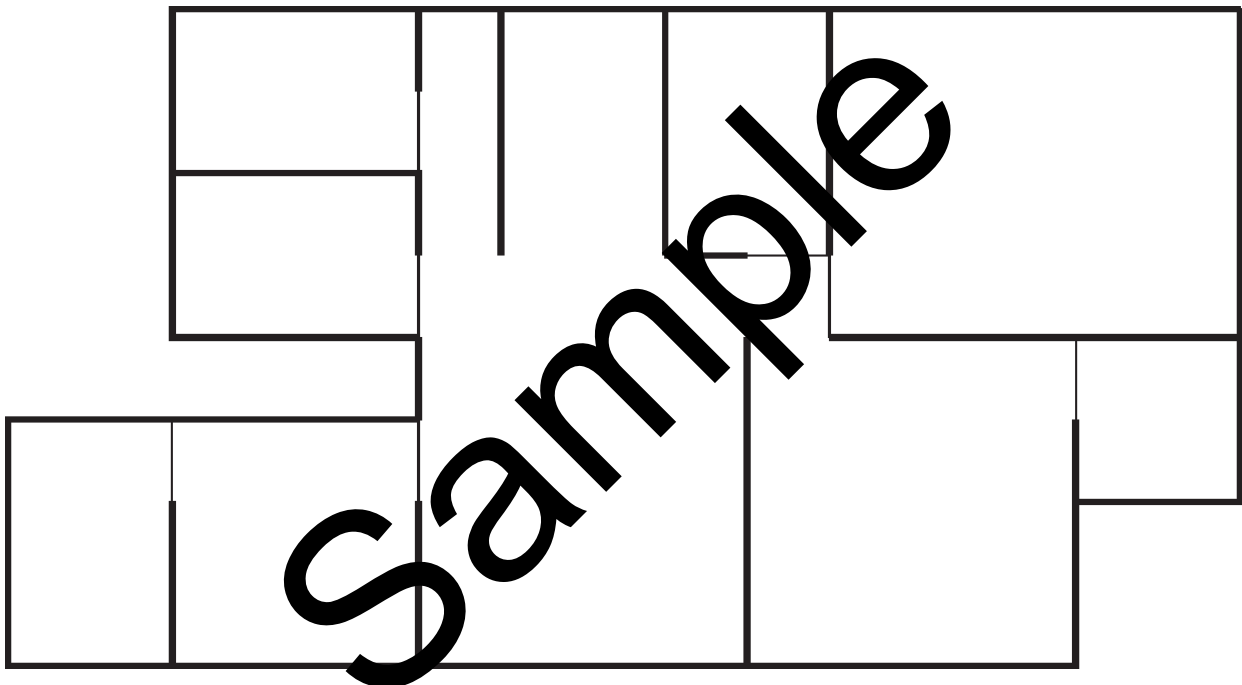




Smart homes use information systems to enable parts of the house to be controlled through the internet, such as lights, air conditioning, and water management. A network of smart devices is used to make a smart home. A smart device is the same as any ordinary part of the house, except it can connect to the internet, and coordinate with other devices in the smart house through an information system. This can also be used to monitor energy and water use, allowing us to have eco-friendly house. For example, a smart lightbulb can be controlled remotely to turn off or on without a light switch and turn off during night-time automatically to save power.



- Research examples of some smart devices, and then draw and label the house below with them to design a smart house.



- Design your own device to be part of the information system that solves a problem or creates a better way of living in the home. Draw and explain your information system solution below and then have a friend read and review it.

My Device is:

Activity 22 Digital Ethics and Safety 2

Read these stories and come up with answers to the problems.

Annie was chatting to some friends online when she received a friend request from someone she didn't know. She noticed they were friends with one of her friends, so she decided to add them to her social media. She looked at the profile and information and the girl looked the same age as her and was into similar interests and hobbies. The girl started messaging; her friendly at first and then pushing to meet up. When Annie said she needed to talk to her parents about it and have someone come with her the girl tried to get her to keep it a secret and meet up alone.



What should she do and why?

Steve wanted to be an online influencer so had changed his profile on social media to public instead of private. He had been sharing posts, stories, videos and reels about basketball tips and highlights from his games. He had added information about where he lived, his contact details and the school he went to thinking that it would help people relate to him and interact more through social media. He received a message from a friend that someone had made a fake account using his information and was trying to steal his identity.



What should he do and why?
