Unit 9 · Computers That Learn

WORKSHEET

Full marks 28

Name _____ Class _____ Roll no. ____ Date _____ Marks _____ / 28

1 Key words [4]

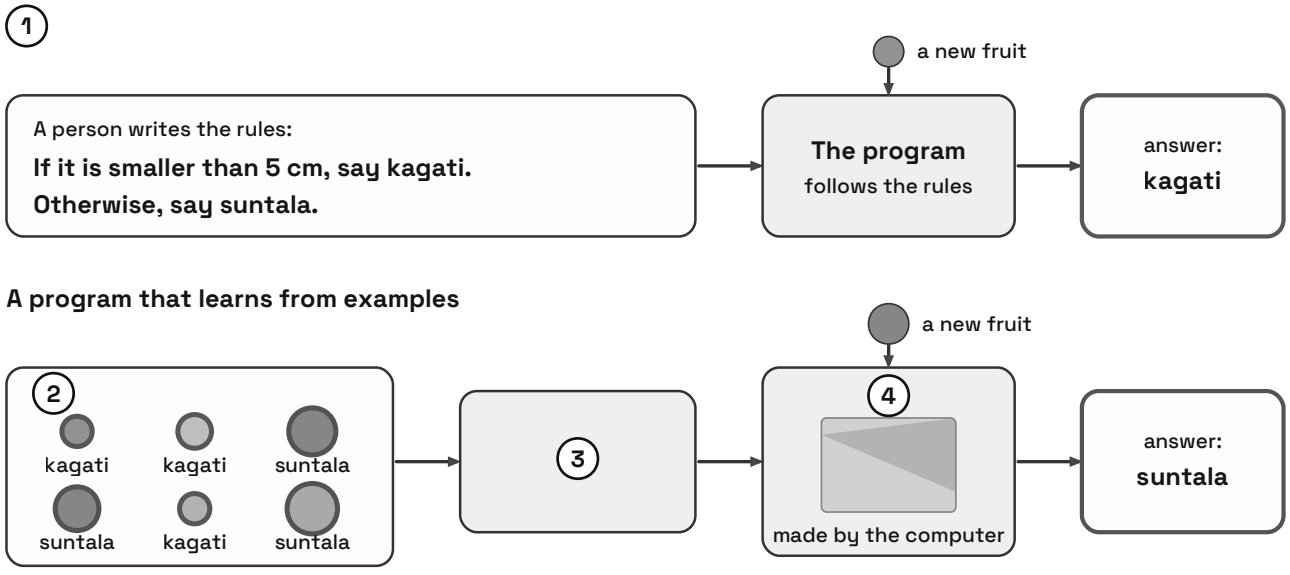
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

artificial intelligence	**data centers**	**examples**	**machine learning**	**model**	**nearest neighbor**
ordinary program	**password**	**spreadsheet**	**training**		

A program that follows rules a person wrote is an _____. A program that learns is given many _____, each with the right answer. Finding the pattern in them is called _____, and the pattern the computer ends up with is the _____. Learning from examples like this is called _____. A computer doing a job that, when a person does it, we say needs a mind is _____. A sorter that gives the answer of the closest example uses the _____ idea. The biggest AI models run in huge buildings full of computers called _____.

2 Label the diagram [2]

The diagram shows two ways to make a program that sorts fruit. Write what belongs in place of 1 to 4. Each carries 0.5 mark.



1. _____ 2. _____

3. _____ 4. _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. What is machine learning? [1]

a. A computer following rules that a person wrote

b. A computer finding the pattern in examples with the right answers, and using it to answer for new things

c. A machine that learns to walk

d. Learning how to use a computer

ii. Which job is best done by an ordinary program, not AI? [1]

a. Working out the total of a shop's bill

b. Finding all the photos of your grandmother on a phone

c. Turning spoken Nepali into text

d. Translating a sentence from English to Nepali

iii. A sorter was trained on photos of cats and dogs. It is shown a photo of a goat. What happens? [1]

a. It says "I don't know what this is."

b. It says "goat".

c. It says "cat" or "dog", whichever is closer.

d. It stops working.

iv. A sorter has learned from photos of ripe red tomatoes only. Shown a green tomato, it says "not a tomato". Why? [1]

a. The computer is broken.

b. Green tomatoes are not tomatoes.

c. None of its examples looked like a green tomato, so it can't recognize one.

d. It was given too many examples.

v. Voice typing has written a message to your teacher. What should you do before you send it? [1]

a. Nothing: computers don't make spelling mistakes.

b. Read it all and correct any words it got wrong, especially names.

c. Type it all again by hand.

d. Ask the voice typing whether it is right.

4 True or false [3]

Write True or False after each sentence.

i. A chatbot that writes "I'm sorry" feels sorry. ☐

ii. A rice cooker that switches to keep-warm by itself is AI. ☐

iii. With the same examples, a nearest-neighbor sorter always gives the same answer for the same fruit. ☐

iv. Adding one example to fix a mistake can turn another answer wrong. ☐

v. An AI answer that sounds very sure is more likely to be right. ☐

vi. Translation apps make more mistakes in languages that have fewer examples online. ☐

5 Why it makes mistakes [2]

Match each mistake in Column A with its reason in Column B. One item in Column B is not needed. Each carries 0.5 mark.

	Column A		Column B
1.	Every suntala it saw was ripe, so it calls a green suntala a kagati.	☐	a. it can only give the answers it was taught
2.	Size and color can't tell it a tennis ball from a fruit.	☐	b. some examples were wrong
3.	Shown a goat, a sorter of cats and dogs says "dog".	☐	c. it measures only some things
4.	Someone ringed a kagati as a suntala, and now it repeats the mistake.	☐	d. the computer is too slow
			e. its examples didn't look like the new thing

6 Be the sorter [3]

Read, then answer.

A nearest-neighbor fruit sorter has just two examples: a **kagati** 4 cm across and green, and a **suntala** 7 cm across and orange.

i. A new fruit is 6.5 cm across and orange. What does the sorter say?
ii. Another new fruit is 6 cm across and green. What does it say?
iii. Is the answer in ii likely to be right? Why?

7 Learning, or rules? [7]

Write short answers to the following questions.

a. What is the difference between an ordinary program and a program that learns? Give one example of each from a phone. [2]

b. Use the three questions for trusting AI (What happens if it's wrong? Has it seen things like this? Can I check it?) to decide what to do: **[3]**

i. A photo app labels your photo of Rara Lake "beach".
ii. A crop app says your potato leaves have late blight and you should spray a chemical.
iii. An app says a mushroom you picked in the forest is safe to eat.

c. Your friend asks a chatbot how to spell "necessary". Give two reasons why this is not a good use of AI. **[2]**

8 Think **[2]**

Think, then answer.

A shop's camera uses AI to spot thieves among its customers. It is right 99 times out of 100. About 500 people come into the shop each day. Should the shopkeeper call the police every time the AI says "thief"? Explain.

9 Activity: AI hunt (not marked)

Look at a phone at home (ask first). Find three things on it that use AI, and one thing that is not AI.

What it is	The job it does	What it probably learned from, or why it isn't AI
AI:		
AI:		
AI:		
Not AI:		