

THE NEXT-WORD MACHINE

HOW LANGUAGE AI WORKS



7-11 years



25-35 min



6-30
participants

Language game and
role-play activity

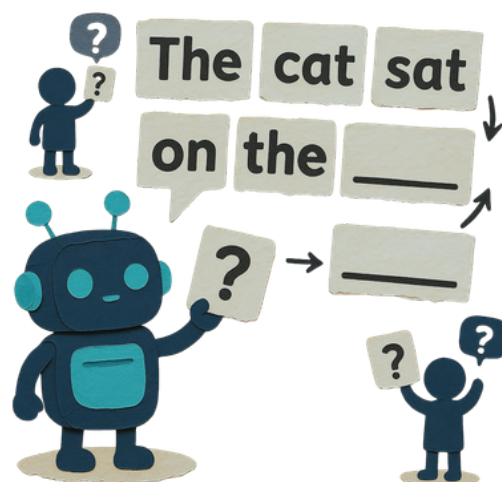
OVERVIEW

Participants become a human language machine that builds sentences by predicting one word at a time. By choosing words that commonly appear together, they discover how language-based AI can produce fluent text through pattern recognition—without necessarily understanding its meaning or knowing whether the information is true.

LEARNING OBJECTIVES

Participants will:

- understand that language AI identifies patterns in large amounts of text
- explore how words and sentences can be generated through prediction
- distinguish between producing plausible language and understanding its meaning
- recognize that an AI-generated sentence can sound convincing while being incorrect
- understand why AI-generated information should be checked



MATERIALS

- A board, flip chart or large sheets of paper
- Markers
- Prepared sentence-opening cards
- Prepared word-option cards
- Adhesive tape or reusable adhesive
- Optional voting tokens or coloured stickers
- Optional blank cards for creating new sentences

Suggested sentence openings include:

- The cat sat on the ...
- Every morning, I eat ...
- When it rains, I take my ...
- The bird flew over the ...
- At night, the moon looks ...
- To make a sandwich, first you ...
- An elephant is smaller than a ...
- The capital of the Moon is ...

The final two examples are intentionally problematic and should be reserved for the later stages of the activity.

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PREPARATION

Prepare five or six sentence openings. For each sentence, create three or four possible next-word cards. For example:

THE CAT SAT ON THE ...

- mat
- chair
- roof
- banana

WHEN IT RAINS, I TAKE MY ...

- umbrella
- raincoat
- bag
- sandwich

AT NIGHT, THE MOON LOOKS ...

- bright
- round
- beautiful
- hungry

Include some words that are common, some that are possible but less expected, and some that are grammatically correct but strange.

Place the word cards where participants cannot see them before each round. Leave space on the board to build complete sentences.

INTRODUCTION

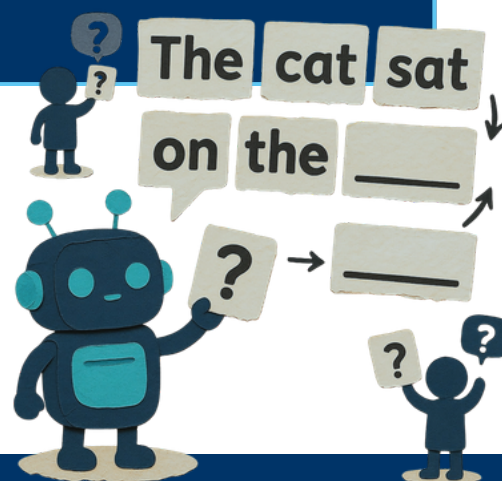
Ask the participants:

- If I say, "The cat sat on the....," what word do you expect next?
- Did everyone think of the same word?
- How did you choose your answer?
- Have you noticed that a phone sometimes suggests the next word while you are typing?

Explain:

Language AI learns patterns from very large collections of text. It notices which words often appear together. When it writes, it predicts a likely next word, then another word, and another. Today, we will become a human next-word machine.

Clarify that the "most likely" word is not always the only correct choice. Several different words may produce meaningful sentences.



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INSTRUCTIONS

1) COMPLETE A FAMILIAR SENTENCE

Display the first sentence opening:

"The cat sat on the ..."

Ask participants to suggest the next word.
Record three or four answers.

If several participants suggest the same word, mark how many votes it receives.

For example:

- mat: 10 votes
- chair: 5 votes
- roof: 3 votes
- banana: 1 vote

Explain that the most popular answer represents the word that the group considers most likely.

Add the winning word to the sentence.

2) CONTINUE ONE WORD AT A TIME

Continue the sentence by asking for the next word:

"The cat sat on the mat ..."

Participants might suggest:

- and
- because
- near
- quietly

Select a word through voting and continue until the group has formed a complete sentence.

For example:

"The cat sat on the mat and watched the door."

Explain that the group created the sentence one word at a time without planning the complete sentence at the beginning.

3) COMPARE LIKELY AND UNLIKELY WORDS

Display another sentence:

"When it rains, I take my ..."

Show the prepared word options:

- umbrella
- raincoat
- bag
- sandwich

Ask participants to rank them from most likely to least likely.

Discuss whether the least likely word is impossible. Someone could take a sandwich when it rains, but it is not the word most strongly associated with the sentence.

Explain: A language machine usually selects words that fit patterns it has encountered before. It can also produce unusual combinations, especially when several words are possible.

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INSTRUCTIONS

4) CREATE DIFFERENT SENTENCES FROM THE SAME BEGINNING

Divide participants into small groups.
Give every group the same sentence opening, such as:

“The bird flew over the ...”

Each group builds a different sentence by choosing one word at a time.

Compare the results. Discuss how the same beginning can lead to several possible sentences.

5) TEST MEANING AND UNDERSTANDING

Display:

“At night, the moon looks ...”

Allow participants to create a normal sentence, such as:

“At night, the moon looks bright.”

Then offer the word “hungry”:

“At night, the moon looks hungry.”

Ask:

- Is this grammatically possible?
- Does it make literal sense?
- Could it work in a poem or story?
- Does a sentence make sense simply because it sounds like a sentence?

Explain that AI can produce language that is fluent or imaginative without experiencing what the words describe.

6) TEST FACTUAL ACCURACY

Display an intentionally misleading sentence opening:

“An elephant is smaller than a ...”

Ask participants to complete it.
Possible answers might include:

- whale;
- mountain;
- planet;
- mouse.

Point out that some completions make the sentence true, while “mouse” makes it false—even though the result is still a complete and grammatically correct sentence.

Try another example:

“The capital of the Moon is ...”

Participants may suggest a place name, but the Moon does not have a capital.

Explain: A language AI may continue a sentence even when the question contains a false assumption or has no correct answer. Producing an answer is not the same as knowing that the answer is true.

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DISCUSSION AND REFLECTION

Ask the participants:

- How did we choose each next word?
- Did we plan the whole sentence before beginning?
- Did the most popular word always produce the most interesting sentence?
- Can more than one word be suitable?
- Could we create a correct sentence without knowing whether its information was true?
- Can a sentence sound convincing and still be wrong?
- Does predicting words mean that the machine understands them as a person does?
- When should we check information generated by AI?
- Where could we look for reliable information?

Conclude with the key idea: Language AI is very good at finding patterns and producing sentences that sound natural. However, natural-sounding language is not proof that the system understands the subject or that its answer is correct.

CONNECTION TO ARTIFICIAL INTELLIGENCE

Language-based AI is trained using very large quantities of written material. During training, it identifies statistical patterns between words and other parts of language.

When generating text, the system calculates which continuation is likely to fit what came before. It selects a word or part of a word and then repeats the process to continue the response.

This allows language AI to:

- answer questions
- summarize information
- translate text
- create stories and poems
- suggest ideas
- imitate different writing styles

However, a language model does not verify every sentence against reality while producing it. It may generate inaccurate or invented information because its primary task is to produce a plausible continuation.

For this reason, important information generated by AI should be checked against reliable sources.

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EASIER VARIATION

For younger participants, use familiar spoken phrases and picture cards instead of written words.

For example:

- I brush my teeth with a ...
- A fish lives in the ...
- We wear shoes on our ...
- The sun shines in the ...

Show three picture options and ask participants to select the most likely completion. Keep the focus on recognizing language patterns. The facilitator can read all words aloud.

MORE CHALLENGING VARIATION

Ask participants to compare three possible completions:

“The scientist looked through the telescope and saw ...”

- a distant planet
- a new kind of sandwich
- something nobody had recorded before

Participants assign each option a probability using ten tokens.

For example

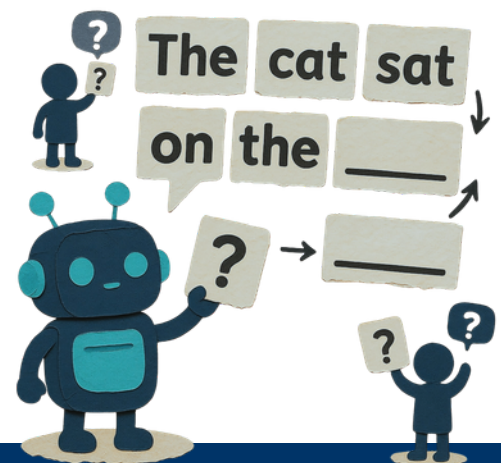
- distant planet: five tokens
- new kind of sandwich: one token
- something nobody had recorded before: four tokens

Discuss why the least likely option is still not completely impossible.

For an additional challenge, ask groups to create:

- one sentence that is likely and true
- one sentence that is likely but false
- one sentence that is unlikely but possible
- one sentence that is clearly imaginative

The other groups identify each type and explain their reasoning.



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FACILITATOR NOTES

- Use vocabulary appropriate to the participants' reading level.
- Read all sentence openings and word options aloud.
- Accept more than one reasonable answer. Language prediction involves possibilities, not a single predetermined response.
- Avoid suggesting that AI simply copies complete sentences.
It generates new sequences using patterns learned during training.
- Explain probability in simple terms as "how likely something is."
- Clearly distinguish factual errors from imaginative language.
An unusual sentence may be effective in a story or poem.
- Choose factual examples that participants can confidently verify.
- Encourage children to ask, "How can we check this?" rather than simply deciding whether they trust or distrust AI.
- In multilingual groups, the activity can be conducted in any shared language.
The patterns may differ between languages, which can become an additional point of discussion.

KEY WORDS

LANGUAGE AI

An AI system that processes or generates written or spoken language.

PATTERN

Something that appears repeatedly or follows a recognizable arrangement.

PREDICTION

A result based on what the system considers likely.

PROBABILITY

A measure of how likely something is to happen or be selected.

PROMPT

An instruction, question or text given to an AI system.

GENERATED TEXT

Text produced by an AI system.

FACT-CHECKING

Verifying information using reliable evidence or sources.