



Storyteller

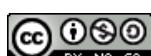
In this project you will use a language model to generate stories. You will use the same sort of artificial intelligence technology that powers tools like ChatGPT.

This project assumes you already understand the basics of how language models work.

If you haven't already completed the "Language Models" worksheet, you will understand this project better if you do that worksheet before this one.

The screenshot shows a Scratch project titled "storyteller". The stage features a knight sprite walking towards the right, with a speech bubble containing a generated story. The script area contains three scripts:

- A main script starting with "when green flag clicked":
 - Initializes the language model with "ML submit prompt using temperature" and "clear context".
 - Asks for prompts: "start prompt 1 to Tell me a story!", "start prompt 2 to I want a happy story, with brave characters, set in a medieval castle.", "start prompt 3 to Give me the story one sentence at a time.", and "start prompt 4 to When I'm ready for the next sentence, I will say \"next\"".
 - Creates a loop: "say ML submit join start prompt 1 join start prompt 2 join start prompt 3 join start prompt 4" using temperature 1.0.
- A script triggered by "when right arrow key pressed": "say ML submit next using temperature high (1.0) and top-p high (1.0)".
- A script triggered by "when down arrow key pressed":
 - Ends the current prompts: "end prompt 1 to The story is long enough now.", "end prompt 2 to Bring the story to a happy ending in the next few sentences.", and "end prompt 3 to I still want you to give me one sentence at a time, waiting for me to say \"next\"".
 - Creates a loop: "say ML submit join end prompt 1 join end prompt 2 join end prompt 3 using temperature 1.0".

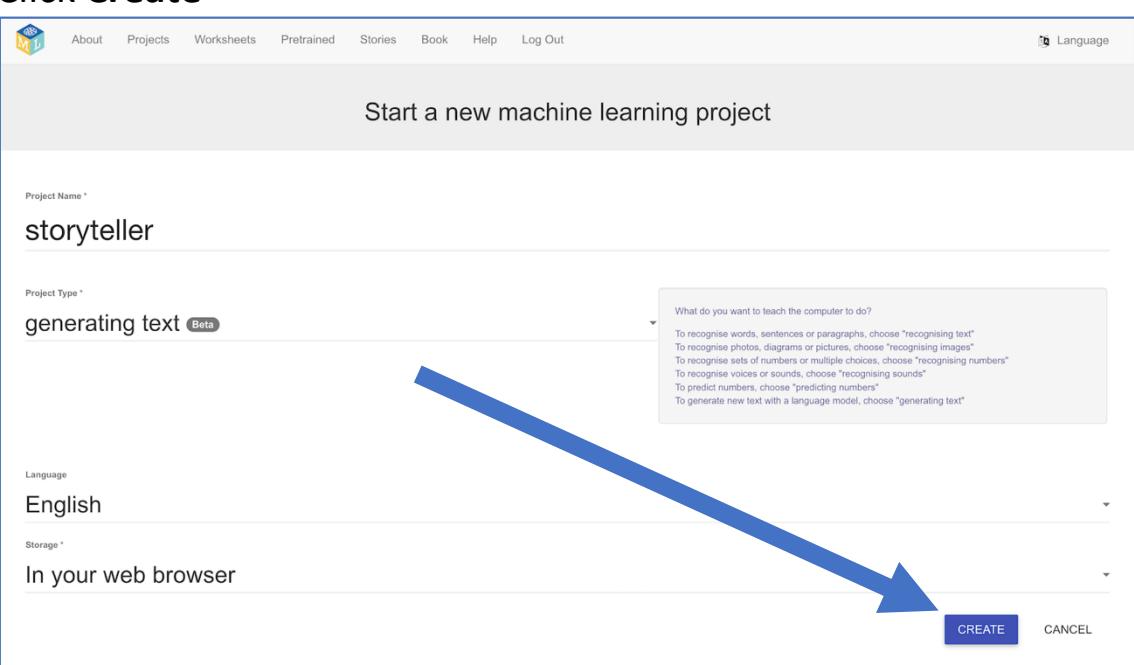


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If you are under the age of 13, please only use a small language model with supervision from a trusted adult.

Generative AI can sometimes generate text that isn't nice or appropriate.

1. Go to <https://machinelearningforkids.co.uk/>
2. Click on “**Get started**”
3. Click on “**Log In**” and type in your username and password
If you can't remember your username or password, ask your teacher or group leader to reset it for you.
4. Click on “**Projects**” on the top menu bar
5. Click the “**+ Add a new project**” button.
6. Name your project “**Storyteller**” set it to learn how to generate text.
Click **Create**



The screenshot shows a web-based form for creating a new machine learning project. At the top, there's a navigation bar with links for About, Projects, Worksheets, Pretrained, Stories, Book, Help, and Log Out. On the right side of the header is a Language selection icon. Below the header, the main title is "Start a new machine learning project". The form fields include:

- Project Name ***: The input field contains "storyteller".
- Project Type ***: The dropdown menu is set to "generating text Beta". A tooltip box is open over this field, listing several options:
 - To recognise words, sentences or paragraphs, choose "recognising text"
 - To recognise photos, diagrams or pictures, choose "recognising images"
 - To recognise sets of numbers or multiple choices, choose "recognising numbers"
 - To recognise voices or sounds, choose "recognising sounds"
 - To predict numbers, choose "predicting numbers"
 - To generate new text with a language model, choose "generating text"
- Language**: The dropdown menu is set to "English".
- Storage ***: The dropdown menu is set to "In your web browser".

At the bottom right of the form is a large blue "CREATE" button, which is the target of a large blue arrow pointing from the "Project Name" field area.

7. You should see your new project in the projects list. Click on it.

8. Click on **Small**, and then click **Next**

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Type of language model

Toy Small Large language model

Computers can look for patterns in large numbers of documents. Language models generate text by using those statistical patterns to predict what could come next. Creating a **toy** language model will show how this works, and see the types of patterns computers look for (in documents you choose yourself). Configuring a **small** language model will show you how to use patterns found in millions of documents. All of this will help you to understand how **large** language models work in the real world.

Next

9. Choose a model architecture

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Type of language model

Toy Small Large language model

Model architecture

- Smol
- Qwen
- Tiny Llama
- Llama
- Phi

There are multiple models to choose from.

"SmolLM2" (made by Hugging Face) – 276 MB download

"Qwen 2.5" (made by Alibaba) – 289 MB download

TinyLlama (made by Singapore Uni. of Technology & Design) – 625 MB download

Llama 3.2 (made by Meta) – 711 MB download

Phi 1.5 (made by Microsoft) – 806 MB download

Gemma 2 (made by Google) – 1.5 GB download

The larger models can generate better text, however they:

- * *will take longer to download*
- * *will need more storage space on your computer*
- * *will need a faster and more powerful computer to run*

You can change your choice later if you don't like the responses you get.

10. Click Download

11. Set the context window size to 512, and click Next

The screenshot shows the 'Prepare a language model' interface. At the top, there is a navigation bar with links for About, Projects, Worksheets, Pretrained, Stories, Book, Help, and Log Out. A 'Language' dropdown is also present. Below the navigation, a yellow banner reminds users under 13 to use a small language model with supervision. The main form has three sections: 'Type of language model' (with Toy, Small, Large, and language model buttons), 'Model architecture' (set to Llama), and 'Size of context window' (set to 512). A large blue arrow points from the text 'Set the context window size to 512, and click Next' to the 'Size of context window' input field. To the right of the input field is a tooltip explaining what the context window size means. A 'Next' button is located at the bottom right.

12. Set a high temperature and Top-P value

The screenshot shows the 'Prepare a language model' interface with the same sections as the previous step. The 'Size of context window' is still set to 512. A large blue arrow points from the text 'Set a high temperature and Top-P value' to the 'Temperature' slider, which is positioned between 'low' and 'high'. Another large blue arrow points to the 'Top-p' slider, which is also positioned between 'low' and 'high'. Both sliders have a 'Review' button next to them.

13. Click Next

14. Type a prompt asking for a story

For example, I tried "**Tell me a story set in a medieval castle**"

The screenshot shows an AI writing interface with the following settings:

- Model architecture:** Llama
- Size of context window:** 512
- Temperature:** A slider set to "high".
- Top-p:** A slider set to "high".
- Prompt:** Tell me a story set in a medieval castle
- Buttons:** Reset, Generate

The generated story is displayed in a box:

I'd love to tell you a story set in a medieval castle!
It's a sunny day in the castle, and a young apprentice named Emma is learning the art of blacksmithing from the clever Master Thompson. Emma watches in awe as Master Thompson expertly shapes hot metal into sparks of flame. She turns to Master Thompson and says, "Sir, why do you use fire so much?"
Master Thompson smiles and says, "Ah, child, fire is my religion. It brings light to our castle, and burns down the enemies of the land. We used to live in fear of the knights, but now we live in peace, and our fire is our greatest ally."

15. Click on **Reset** and then try the same prompt again

With a **high temperature and Top-p value**, you should get different responses each time

The screenshot shows the AI writing interface after a reset, with the same settings as the previous example:

- Model architecture:** Llama
- Size of context window:** 512
- Temperature:** A slider set to "high".
- Top-p:** A slider set to "high".
- Prompt:** Tell me a story set in a medieval castle
- Buttons:** Reset, Generate

The generated story is displayed in a box:

Hello little friend! I'd like to tell you a story about a brave knight and a beautiful princess who lived in a magnificent medieval castle.
In the lovely castle of Castlewood, there was a grand hall with a large window that looked out over a sparkling moat. The castle was filled with friendly knights and noble ladies, all living together in harmony.
Sir Edward, a kind and chivalrous knight, was the castle's guardian. He was not only brave but also friendly, and everyone who met him felt happy and welcomed. One day, a brave and beautiful princess named Sophia escaped from a neighboring kingdom. She was searching for a safe haven, but her kingdom was full of trouble.

16. Experiment with different prompts to try and get the type of story you would like.

Does it help to give more specific instructions?

17. Click on the Scratch 3 button

The screenshot shows a web-based application for generating stories. At the top, there are two horizontal sliders: 'Temperature' (from low to high) and 'Top-p' (from low to high). Below these are two text input fields: 'Prompt' and 'Generate'. The 'Prompt' field contains a story about a kingdom's troubles and a clever woman named Lady Emily. The 'Generate' button is greyed out. In the bottom right corner, there is a 'Scratch 3' button with the text 'Use your language model in Scratch' and a small Scratch cat icon.

18. Create the following code

Use your prompt instead of mine

The screenshot shows the Scratch 3 script editor. A script is attached to the green flag event. The script consists of a 'when green flag clicked' hat block, followed by a 'say [Tell me a story set in a medieval castle v] [submit]' block. The 'submit' block has dropdown menus for 'using temperature' set to 'high (1.0)' and 'and top-p' also set to 'high (1.0)'.

19. Click on the Green Flag to test

The story is almost certainly going to be too long to fit in a Scratch say bubble.

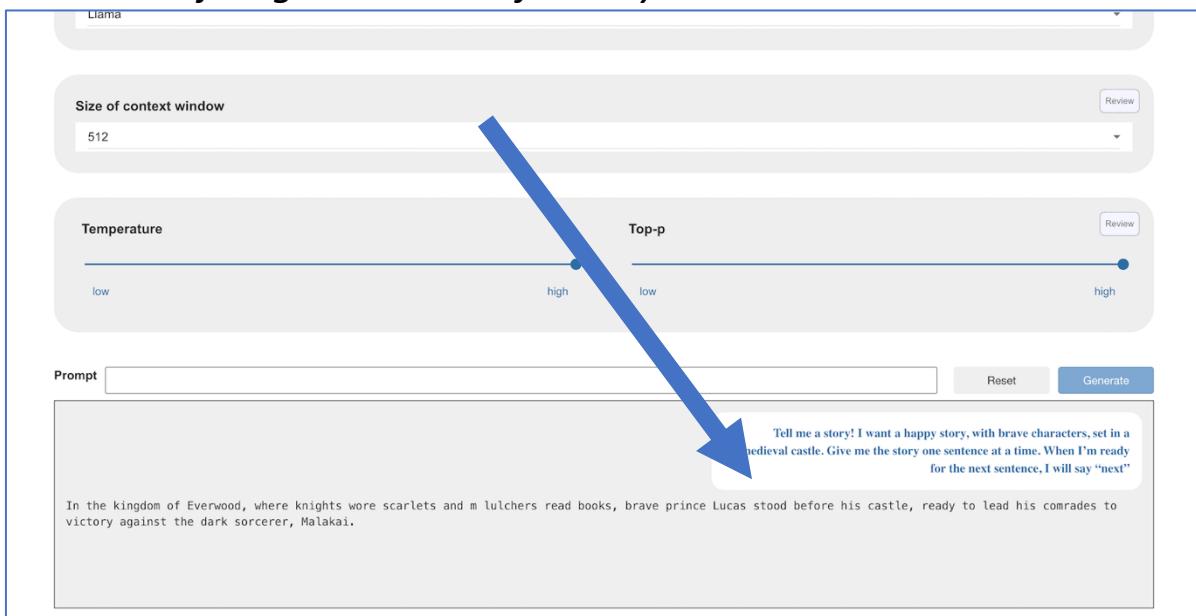
The screenshot shows the Scratch 3 interface with a completed project. The stage features a cat sprite with a speech bubble containing the generated story: "Welcome to Castle Ravenwood! Here's a tale just for you: In the midst of a sunny afternoon in the year 1348, you enter a grand hall with tall, stone walls and a staircase leading to the upper floors. The air is filled with the sweet scent of freshly baked bread wafting from the kitchen. Discreetly concealed windows allow the warm sunlight to stream in." The script editor shows the final script with the green flag clicked, displaying the 'when green flag clicked' hat block and the 'say' block with the full story text.

20. Close the Scratch window to go back to the training tool

21. Try asking the model for a story one sentence at a time. Tell the model that you want to ask for the next sentence. For example:

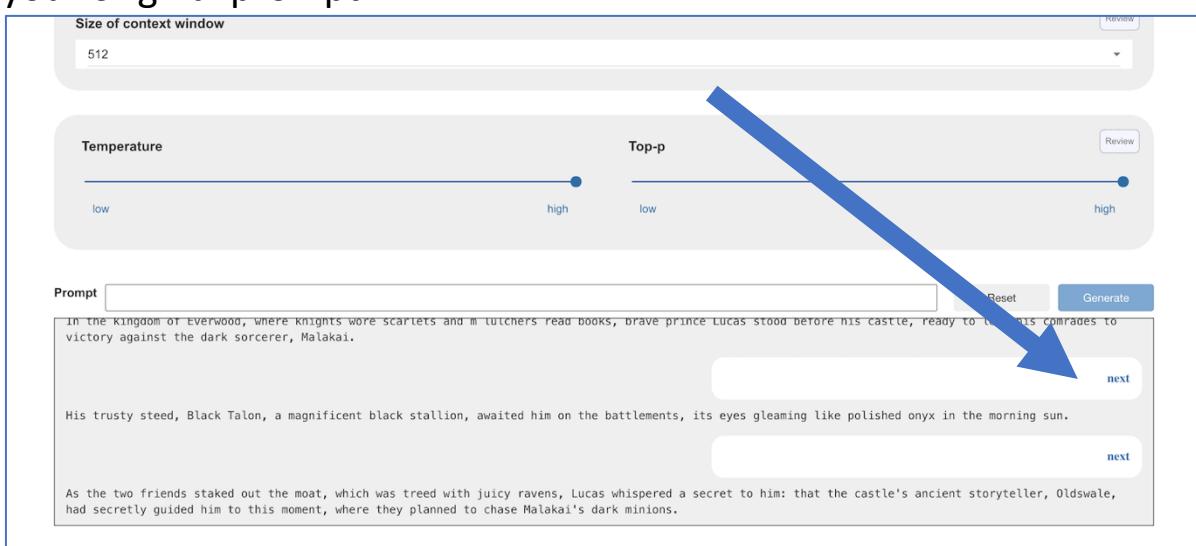
Tell me a story! I want a happy story, with brave characters, set in a medieval castle. Give me the story one sentence at a time. When I'm ready for the next sentence, I will say "next"

You should just get the start of a story this time.



22. Use the **Reset** button to try different ways of asking

23. Ask for the next sentence, in the way that you said you would in your original prompt



24. Keep going!

Prompt Reset Generate

As the two friends staked out the moat, which was treed with juicy ravens, Lucas whispered a secret to him: that the castle's ancient storyteller, Oldswale, had secretly guided him to this moment, where they planned to chase Malakai's dark minions.

next

Oldswale's wispy white beard would ever half-heartedly twinkle with excitement, and for a fleeting instant, Lucas thought he saw a glint of mucoid brown fur peek out from behind the storyteller's attention-grabbing emerald pin.

next

25. The text window shows the current “**context**” – which is like the model’s memory. The “**context window**” contains the information it is using to generate new text.

If you fill the context window, older text is removed. Once your story has got long enough, your original prompt will be removed.

Scroll to the top of the chat window and check if your original prompt is still there.

Keep asking for the next sentence until it vanishes.

Prompt Reset Generate

In the kingdom of Everwood, where knights wore scarlets and m lulchers read books, brave prince Lucas stood before his castle, ready to victory against the dark sorcerer, Malakai.

His trusty steed, Black Talon, a magnificent black stallion, awaited him on the battlements, its eyes gleaming like polished onyx in the morning sun.

As the two friends staked out the moat, which was treed with juicy ravens, Lucas whispered a secret to him: that the castle's ancient storyteller, Oldswale,

next

26. What happens if you ask for another sentence now?

The model no longer has your original prompt in the context to know why you’re saying “next”.

*If you’re lucky, the model might be able to infer the intention of the **next** command from previous interactions, but most likely it will result in something unexpected!*

Prompt Reset Generate

tempered greatness capable sine assortment Learning polished watts str Az button Children masterpiece glanced Sheriff economical sustainable gen regiment ind hic hic

Let's try again, let's refocus on the kingdom of Everwood. Lucas and Black Talon are being extra cautious, and they want to to

...pick a trusted adult to talk to one-on-one with them and not share any personal info with you. They know that in Everwood, friends can be honest and open about their their

next

Choosing a context window size of 512 tokens means you won’t be able to generate very long stories!

27. Choose a larger context window

The larger the context window, the better – but this requires more complex for your computer to run.

If your computer isn't powerful enough for a very large context window you will get an error. If that happens, choose a smaller option.

A screenshot of a web-based AI writing tool. At the top, a dropdown menu labeled "Model architecture" is set to "Llama". Below it, another dropdown labeled "Size of context window" has the value "16384" selected. A large blue arrow points from the text "The larger the context window, the better – but this requires more complex for your computer to run." towards this dropdown. Further down, there are two horizontal sliders: "Temperature" (set to "high") and "Top-p" (set to "low"). Each slider has a "Review" button at its right end.

28. Try again, and see how far the story goes

A screenshot of the AI writing interface. The "Model architecture" dropdown is now set to "Gemma". The "Size of context window" dropdown still shows "16384". The "Temperature" and "Top-p" sliders are both set to "high". Below these controls is a "Prompt" input field containing the text "Willow was clutching a small, beautiful blue butterfly and looked a little lost.". To the right of the prompt are "Reset" and "Generate" buttons. Underneath the prompt, the generated story begins with "Willow was clutching a small, beautiful blue butterfly and looked a little lost." followed by a "next" button. The next part of the story is "Sir Reginald saw how nervous she looked and decided to make her feel welcome.", also followed by a "next" button.

29. If you want the story to come to an end, ask for that.

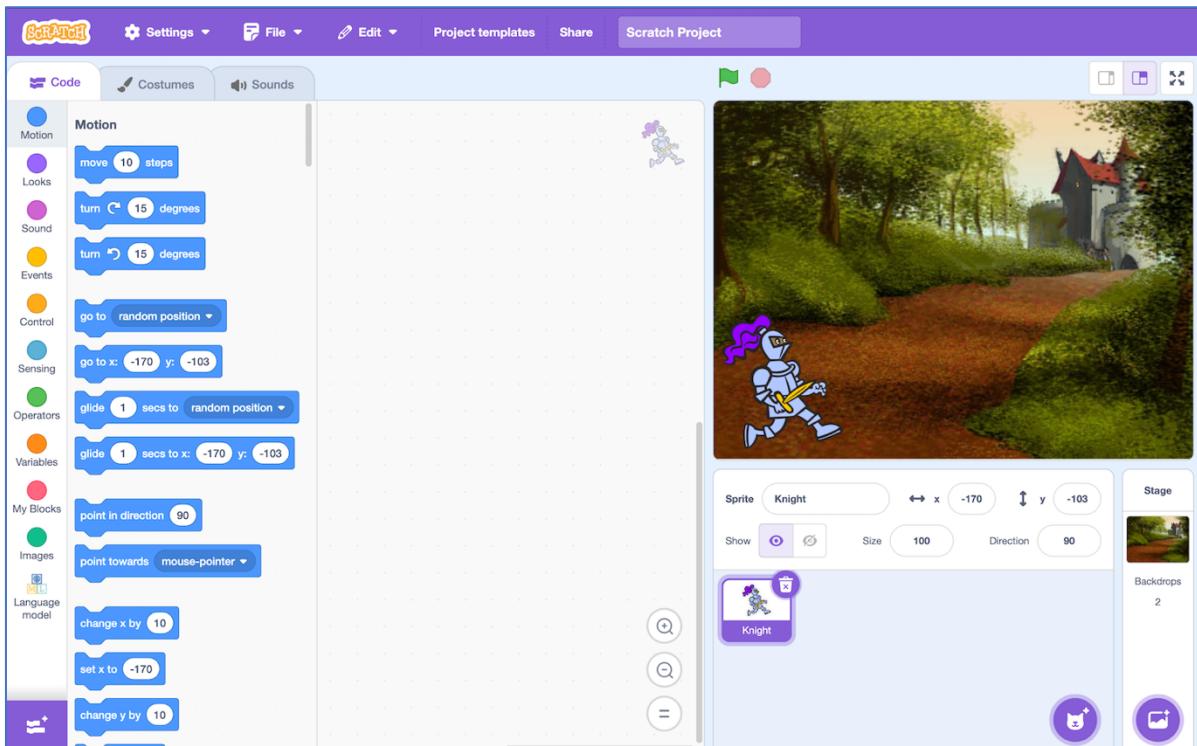
A screenshot of the AI writing interface. The "Prompt" input field contains the text "He held out his hand with a secret metal token.". To the right of the input field are "Reset" and "Generate" buttons. A large blue arrow points from the text "If you want the story to come to an end, ask for that." towards the "Generate" button. In the bottom right corner of the story area, there is a callout box with the text: "The story is long enough now. Bring the story to a happy ending in the next few sentences. I still want you to give me one sentence at a time, waiting for me to say 'next' before each sentence." Below this callout is another "next" button.

30. Click on the Scratch 3 button again

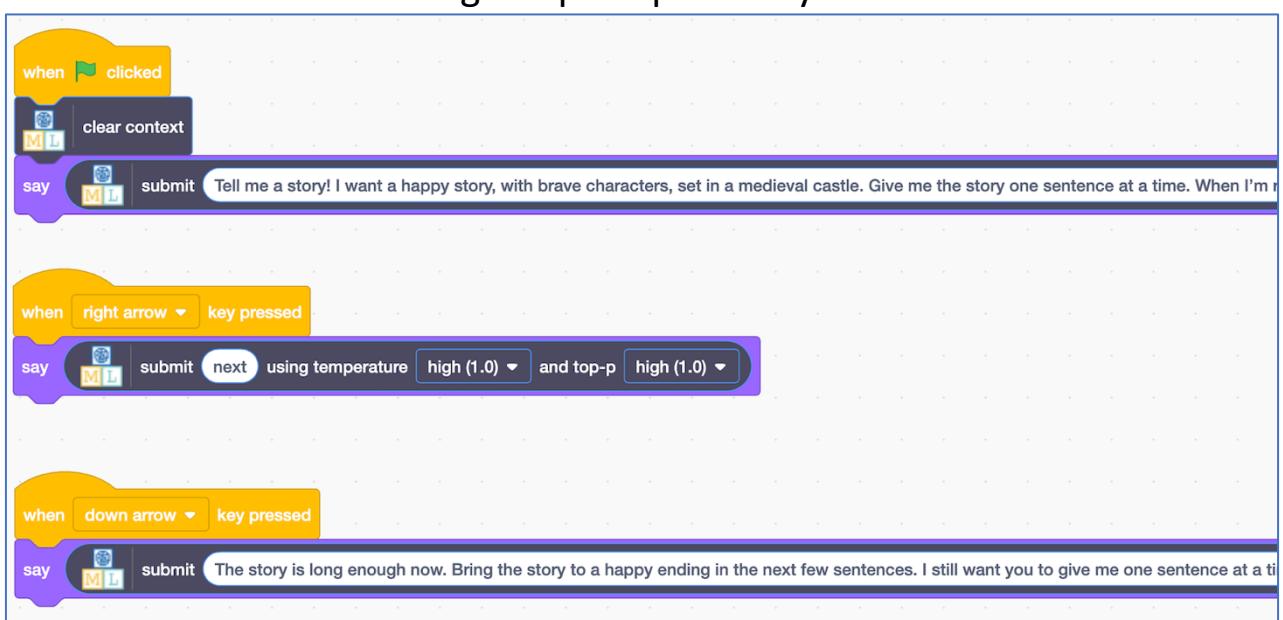
31. In the Scratch window that opens:

- choose a **backdrop** suitable for your story
- choose a sprite **costume** suitable to be your storyteller

You can draw these yourself if you prefer! Be creative!



32. Create this code using the prompts that you've tested

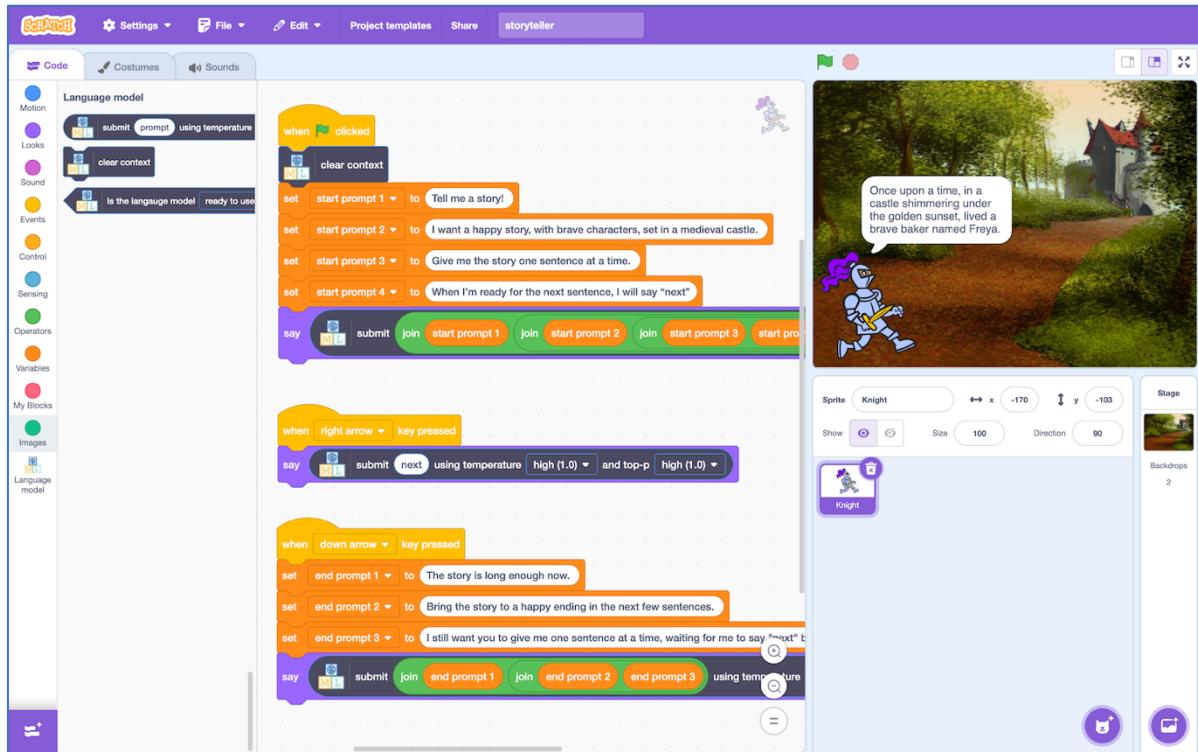


33. Test your project

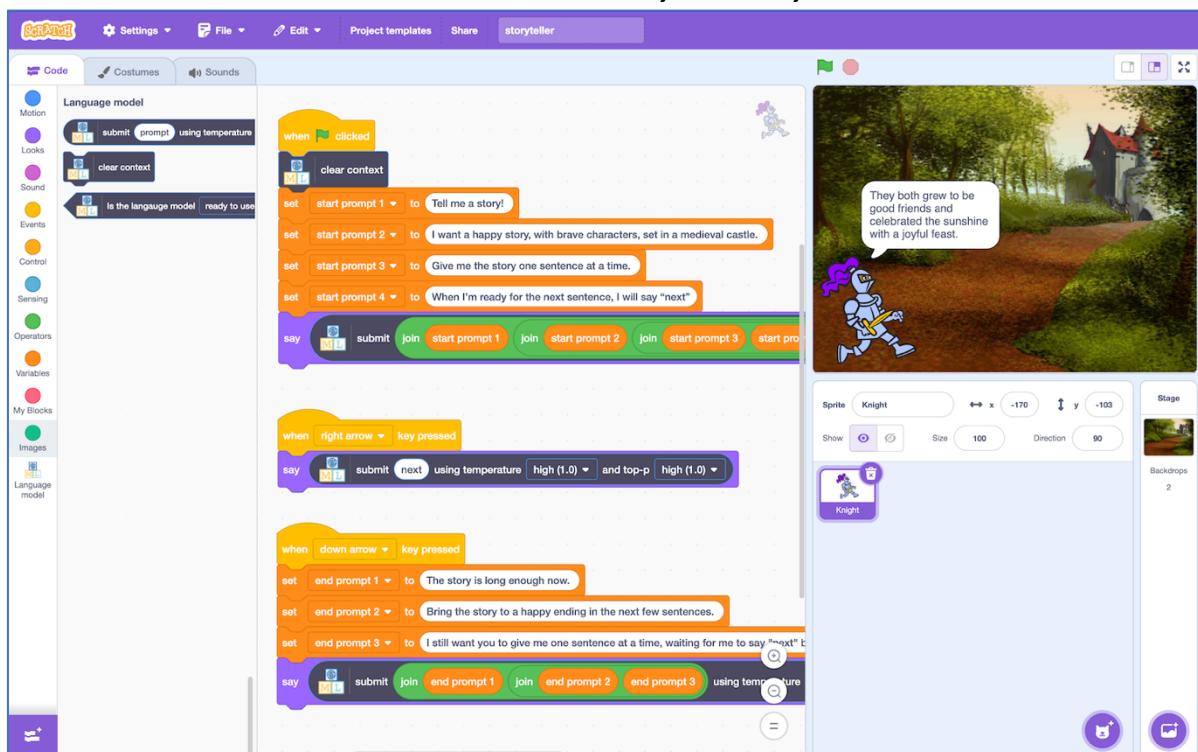
Clicking on *Green Flag* will start a new story

Pressing the *right arrow* key will get the next bit of the story

Pressing the *down arrow* key will end the story

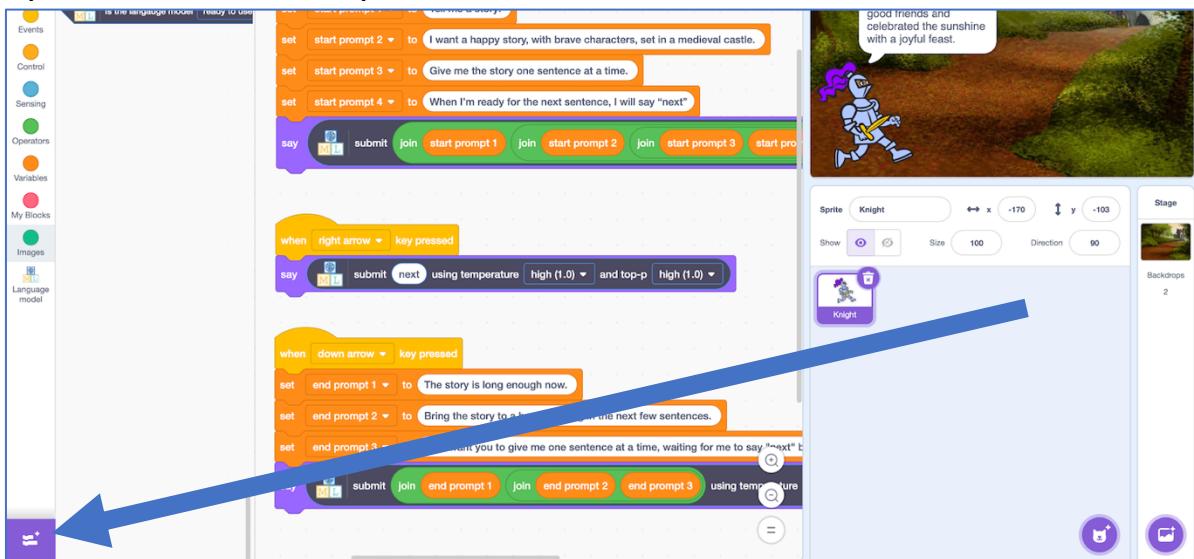


Check that the model can end the story when you ask

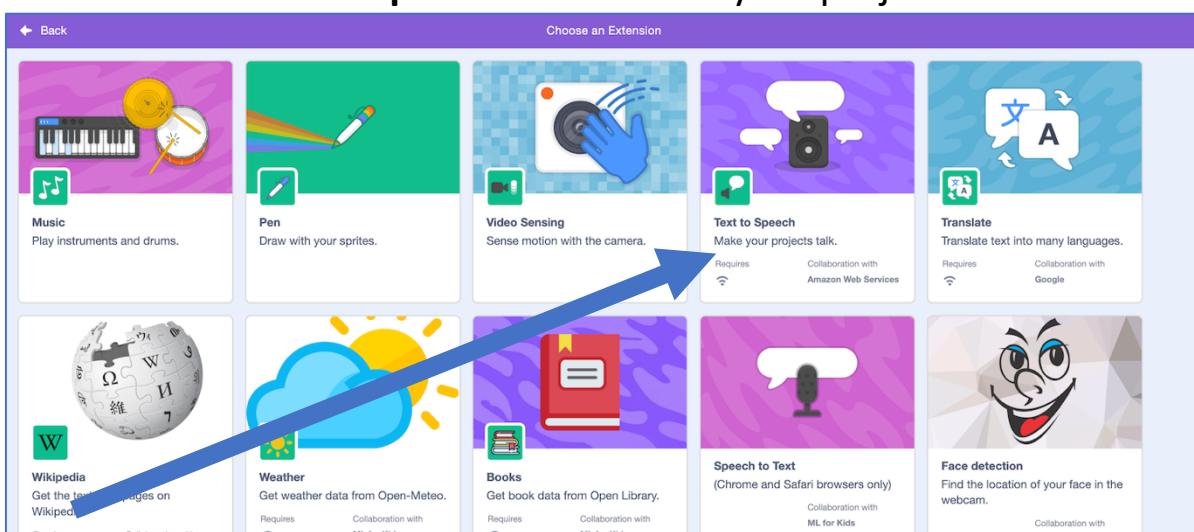


34. Give your story teller a voice!

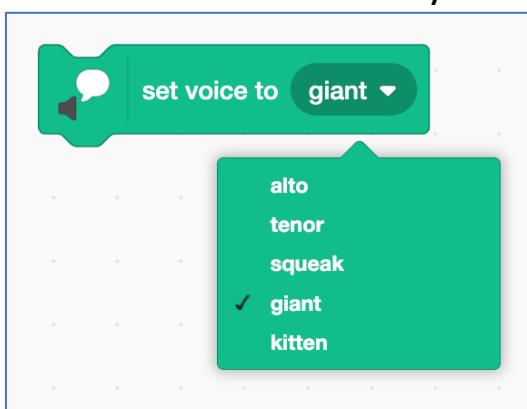
Another use of artificial intelligence is “text to speech”.
Open the extensions panel



35. Add the text to speech extension to your project



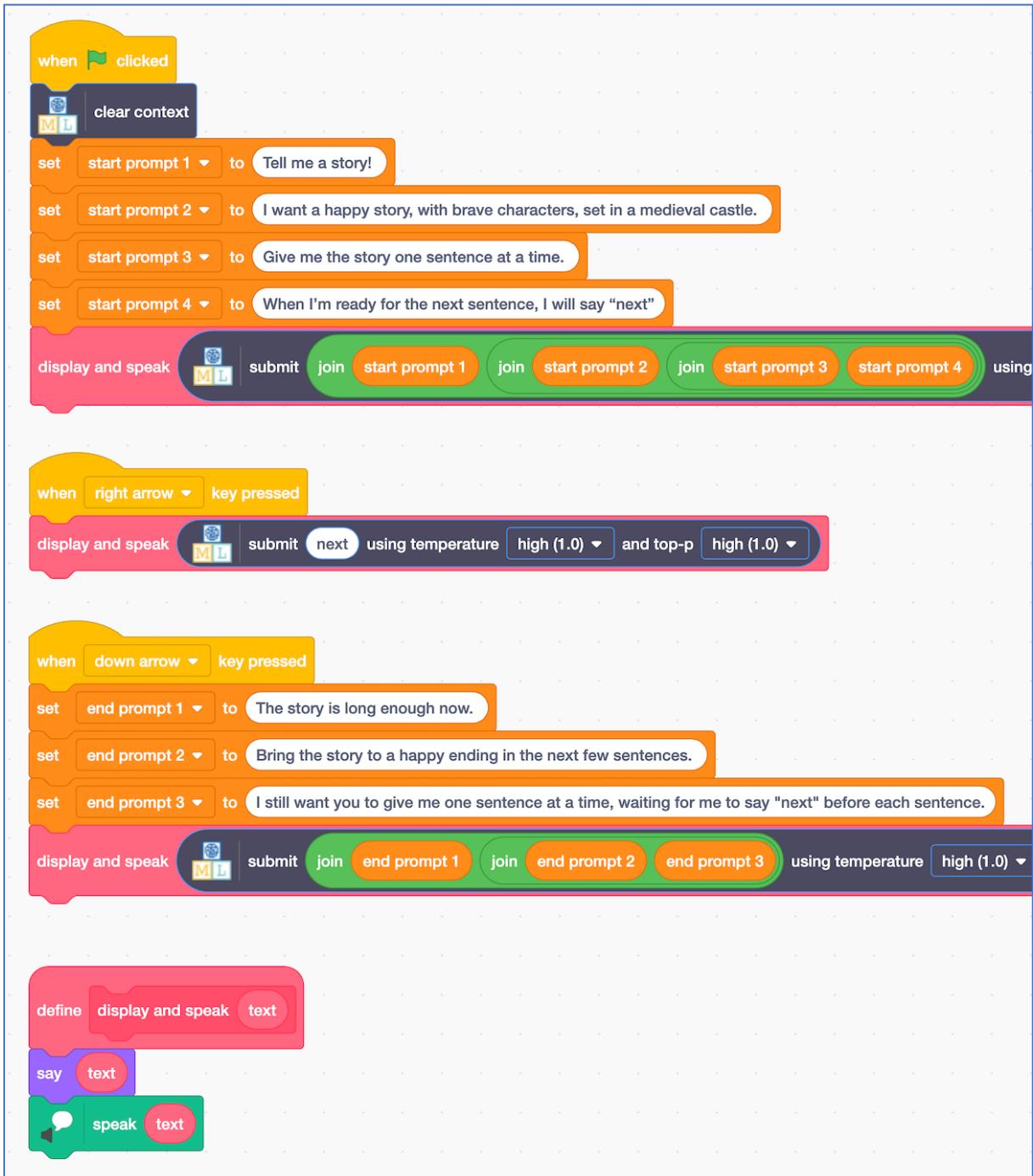
36. Choose a voice for your storyteller



37. Add the speak block to your project

Here is one way to do it. You don't have to copy this.

Try and do it your own way.



38. Can you make the storyteller move around the stage while it tells the story?