



# Introduction to Generative AI

## What are Generative AI Tools?

Generative AI tools are advanced technologies that create outputs based on inputs (such as text, drawings, or documents).

They can be used as virtual assistants, helping with a variety of activities across several industries.



# What are Real-World Applications of Generative AI Tools?

- 🎭 Entertainment: Generating plot outlines or dialogue for movies or TV shows.
- 📣 Marketing: Generating social media posts or blog content based on trends.
- 🎨 Design: Creating custom graphics or artwork.
- 🏥 Healthcare: Generating patient-specific treatment plans based on medical data.
- 💰 Finance: Generating financial reports or forecasts based on market trends.
- 🎓 Education: Creating virtual tutors or educational chatbots to assist learning.
- ⚖️ Legal: Creating summaries or analyses of case law and legal precedents.
- 🏭 Manufacturing: Generating optimised production schedules-based forecasts.
- 🏪 Retail: Creating virtual try-on experiences for clothing or accessories.
- 🚗 Automotive: Generating designs for vehicle components or prototypes.



## Which Generative AI will we be Exploring Today?

There are a countless number of generative AI tools available and being developed currently. In this self-guided demonstration, we will explore some of the most common, including **ChatGPT**, **Gemini**, and **Claude**.

The video on the right provides a quick 10-minute explanation on what Chat GPT is and how it works.

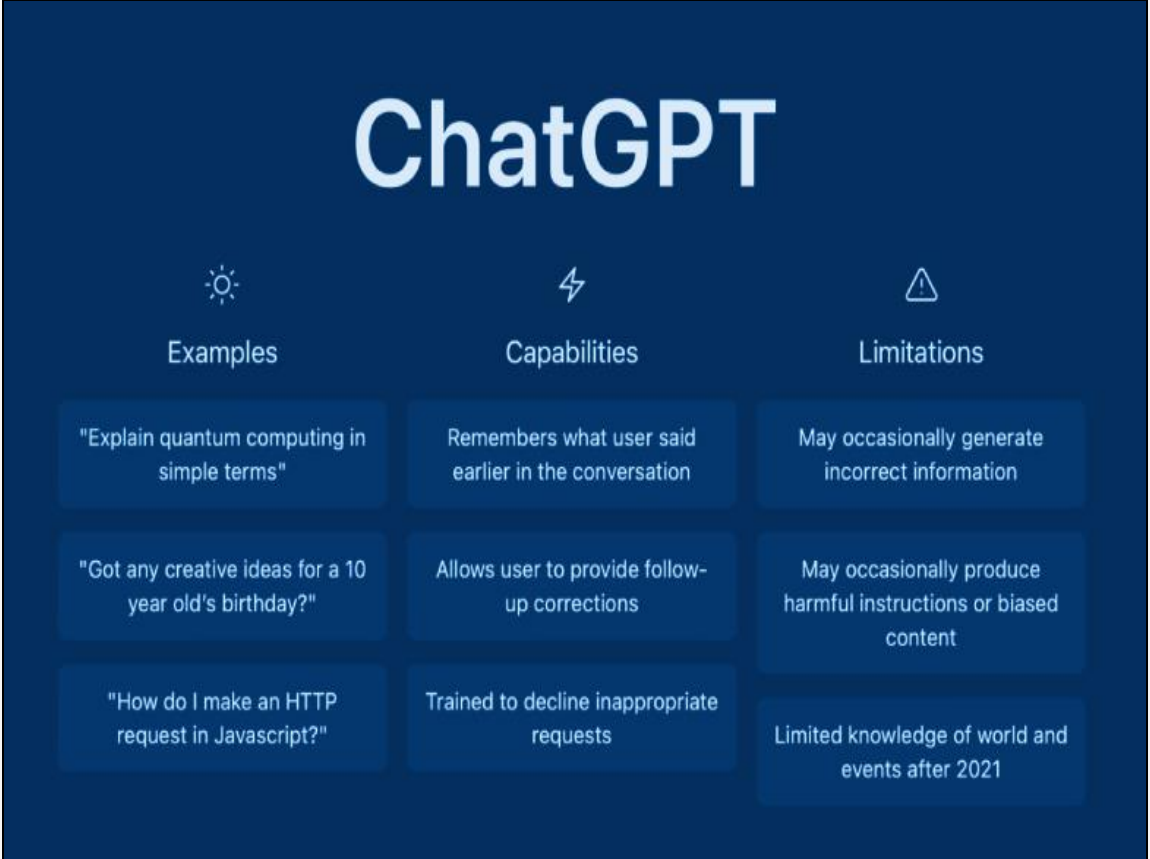


## Activity Overview

To explore some of the capabilities of ChatGPT, Gemini, and Claude we will do the following:

1. Engage in a conversation about a specific topic.
2. Generate a short story based on a given question.
3. Recognise the limitations and challenges of these tools and the need for trust in the results.

These are not nearly all of the capabilities of these tools, but provide a good basic overview of what they can and can't do.






Examples	Capabilities	Limitations
"Explain quantum computing in simple terms"	Remembers what user said earlier in the conversation	May occasionally generate incorrect information
"Got any creative ideas for a 10 year old's birthday?"	Allows user to provide follow-up corrections	May occasionally produce harmful instructions or biased content
"How do I make an HTTP request in Javascript?"	Trained to decline inappropriate requests	Limited knowledge of world and events after 2021



## Getting Set Up

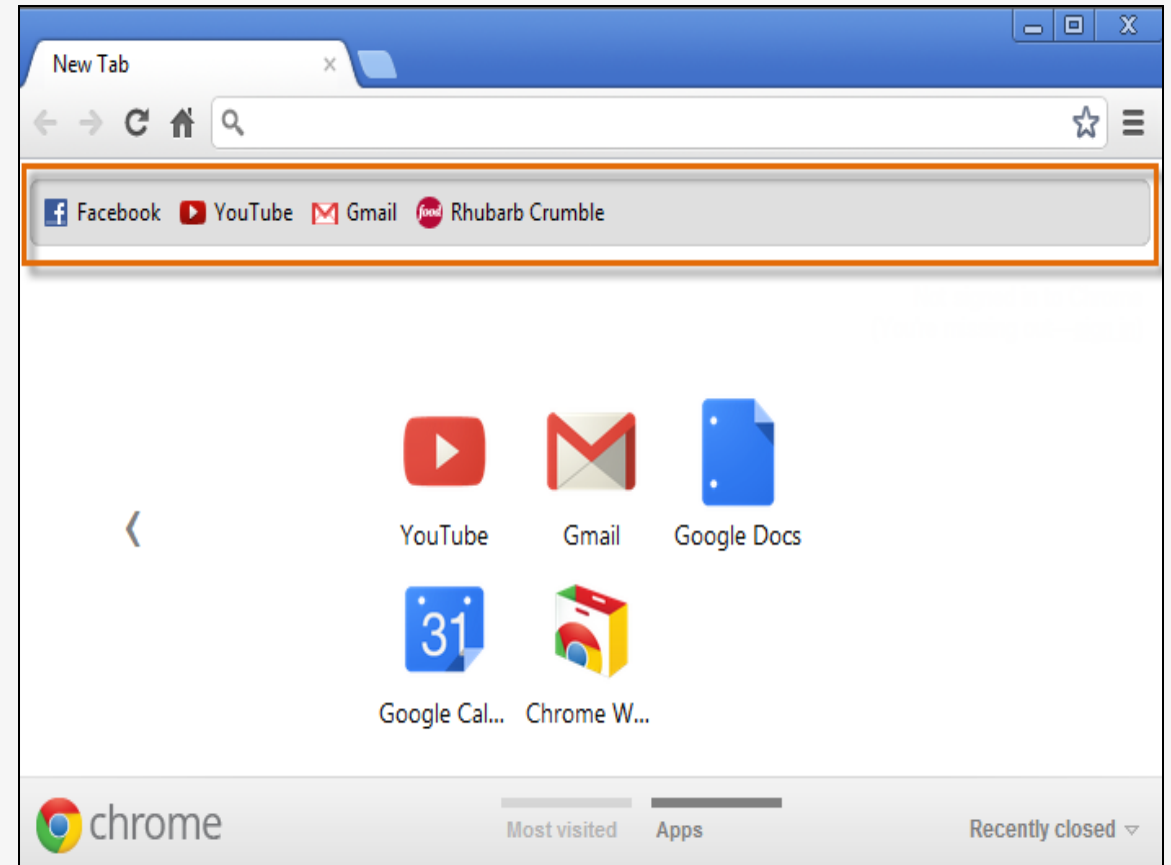
These are the links to the three generative AI tools we'll look at:

1. [Chat GPT](#) 
2. [Gemini](#) 
3. [Claude](#) 

To start with, open up Gemini, Claude, and ChatGPT on separate tabs.

*On the NAIS laptops, you can use the 'favourites' bar in the Chrome browser to open the tabs. You should be able to use each of them with the pre-populated NAIS login and password.*

Chrome Favourites Bar:

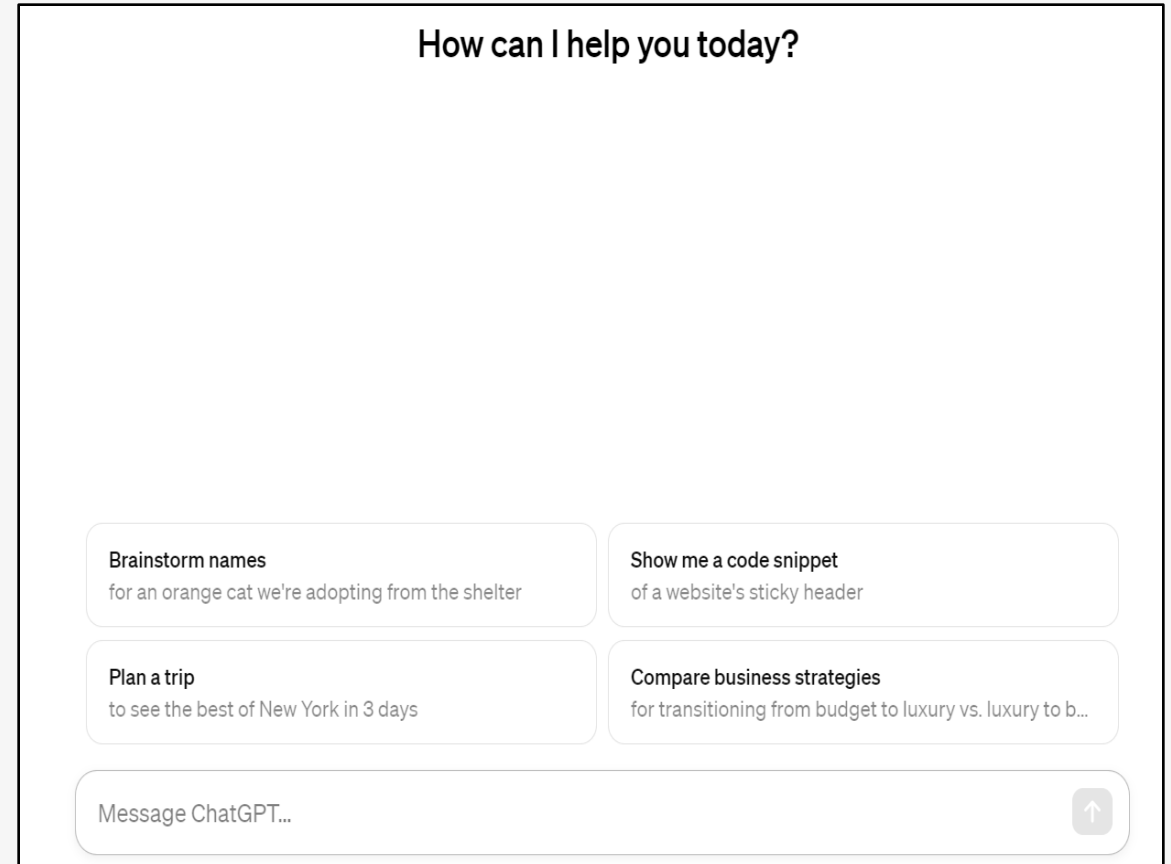


**Write a Simple Question**

## Write a Simple Question

Chat GPT, Gemini, and Claude all have a bar in which you can enter a question. The picture on the side is Chat GPT, but the others have very similar interfaces.

*Chat GPT:*




How can I help you today?

Brainstorm names  
for an orange cat we're adopting from the shelter

Show me a code snippet  
of a website's sticky header

Plan a trip  
to see the best of New York in 3 days

Compare business strategies  
for transitioning from budget to luxury vs. luxury to b...

Message ChatGPT... 





## Write a Simple Question

Ask each AI tool a question; for example, you could enter the question (also known as the prompt) “**What is Nelson, New Zealand, known for?**”.

*Gemini:*

**L** What is Nelson, New Zealand, known for

◆ Nelson, New Zealand is known for a few things:

- **Sunshine and beaches:** Nicknamed the “Sunshine Capital” of New Zealand, Nelson enjoys a sunny climate year-round and boasts beautiful long golden beaches. This makes it a popular spot for swimming, sunbathing, and relaxation.



Nelson beaches, New Zealand

- **National parks:** The region is surrounded by stunning national parks, including Abel Tasman National Park, Nelson Lakes National Park, and Kahurangi National Park. These parks offer opportunities for hiking, kayaking, camping, and exploring native flora and fauna.



## Write a Simple Question

Consider the result:

- You will notice that each AI tool has a slightly different answer, much like what would happen if you asked three humans the same question. Even if you asked the same AI tool the same question again in a different chat, it would come up with a different response. However, the answers that each gives should boil down to the same outcomes – key features of Nelson.
- It is important to realise that the answers that each AI tool gives may not be completely correct – they are language tools that generate responses based on patterns that they find in their research data.

*Claude:*

NA What is Nelson, New Zealand, known for?

Nelson, a city located on the northern tip of New Zealand's South Island, is known for several things:

1. Sunshine: Nelson is one of the sunniest places in New Zealand, with an average of over 2,400 sunshine hours per year.
2. Arts and crafts: The city has a thriving arts and crafts scene, with many galleries, studios, and markets showcasing the work of local artists and artisans.
3. Beaches and natural beauty: Nelson is surrounded by stunning natural landscapes, including golden sand beaches, lush forests, and the nearby Abel Tasman National Park.
4. Wine and craft beer: The Nelson region is home to numerous wineries and craft breweries, producing highly regarded Sauvignon Blanc, Chardonnay, and Pinot Noir wines, as well as a variety of unique craft beers.
5. Horticulture: The area is known for its fruit-growing industry, particularly apples and kiwifruit.
6. World of WearableArt (WOW): This annual event showcases a unique blend of fashion, art, and theater, attracting international attention.
7. Fishing: Nelson is a popular base for fishing enthusiasts, with easy access to both freshwater and saltwater fishing locations.

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**Write a Detailed Question**

## Write a Detailed Question

To make sure that you get the response that you want, it is important to make sure that your question is as detailed as possible. As a follow **up to the previous question, you could enter something like “We are in Nelson, NZ, for a few days, and we want to experience all that it offers. What are some of the best things to experience in Nelson?”**

*Chat GPT:*



**You**

We are in Nelson, NZ, for a few days, and we want to experience all that it offers. What are some of the best things to experience in Nelson?



**ChatGPT**

Nelson, New Zealand, offers a variety of attractions and experiences that cater to different interests. Here are some of the best things to experience while you're in Nelson:

1. **Abel Tasman National Park:** Take a scenic boat ride or hike along the Abel Tasman Coast Track, which offers stunning views of golden beaches, turquoise waters, and lush coastal forests. You can also enjoy kayaking, sailing, or wildlife spotting in the park.
2. **World of WearableArt & Classic Cars Museum:** Explore the unique and fascinating exhibits showcasing wearable art creations and classic cars. The museum offers an immersive experience into the world of creative fashion and automotive history.
3. **Nelson Saturday Market:** Visit the vibrant Nelson Market held every Saturday, where you can browse local produce, artisan crafts, clothing, and jewelry. Enjoy live music,



## Write a Detailed Question

You can take this further by asking each tool to simplify or further their response. For example, ask each tool **“I enjoy spending time outdoors, and would also like to visit some restaurants and museums. Can you give me some activities that would cater to these things?”**

Gemini:

The screenshot shows the Gemini AI chat interface. At the top, a user prompt is displayed in a light blue bubble: "I enjoy spending time outdoors, and would also like to visit some restaurants and museums. Can you give me some activities that would cater to these things?". Below the prompt, a "Google Maps" tool is shown as a blue diamond icon with a dropdown arrow. The AI's response is in a white bubble and reads: "Sure, here are some activities that cater to your interests:". This is followed by a bulleted list of activities, including "Outdoor activities" (with sub-items like Cable Bay Adventure Park, Paddle Nelson Kayak and SUP Rental, and The Heaphy Track) and "Restaurants" (with sub-items like Hawker House and Urban Oyster Bar & Eatery). At the bottom, there is a text input field with the placeholder "Enter a prompt here" and a microphone icon. A small disclaimer at the very bottom states: "Bard may display inaccurate info, including about people, so double-check its responses. [Your privacy & Bard](#)".



## Write a Detailed Question

Consider the result:

As you can see, the more detailed the question and the more limits you put on the tool you are talking to, the more refined the response is. To get the right response, it is sometimes necessary to modify your question several times. You may also notice that some of the information you are provided with seems wrong. In short, these models do not necessarily provide correct information, just what 'seems' right - the next section will go over this in more detail.

*Claude:*

I enjoy spending time outdoors, and would also like to visit some restaurants and museums. Can you give me some activities that would cater to these things?

LG

Based on your interests in the outdoors, restaurants, and museums, here are some great activities I would recommend in the Nelson area:

Outdoors:

- Take a full day hike in Abel Tasman National Park to see some of the most pristine beaches and forest in New Zealand. The Coastal Track from Marahau is popular.
- Go sea kayaking in Abel Tasman to paddle around the secluded bays and view coastal scenery from the water. Guided tours available.
- Take a walk around the Centre of New Zealand trail for panoramic views from a hilltop overlooking Nelson city.
- Rent a bike and ride the Dun Mountain Trail showcasing great views, historic sites like an old railway tunnel, and picnic areas along the way.

Restaurants:

- Hopgoods restaurant at the Sprig and Fern brewery - locally sourced food and craft beer tasting paddles.
- Boat Shed Cafe - casual dining right on the waterfront overlooking the marina. Seafood focus.
- Morris & James - for a nice dinner out with freshly made pasta, wood-fired pizza and an extensive wine list.



# Understanding Limitations

## Understanding Limitations


There is a noticeable difference in how these tools respond to questions relating to very recent events.

- Try asking each tool “**What are five restaurants open in Nelson today for me to eat at**”


or

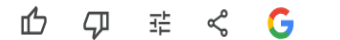
- Try asking each tool what the current official cash rate is; “**What is the current official cash rate in New Zealand?**”

*Gemini:*

 What is the current official cash rate in new zealand



 The current official cash rate in New Zealand is 5.5%. This rate was set by the Reserve Bank of New Zealand on April 10, 2024 [Reserve Bank of New Zealand - Te Pūtea Matua].





## Understanding Limitations

Consider the result:

- The first thing you should notice is that Chat GPT cannot give a proper answer as the cutoff date that it is trained on only goes up until January 2022 (this is the cutoff date for the free version of ChatGPT we are using on GPT-3.5 - the cutoff date for the premium version of ChatGPT is April 2023 for GPT-4). This means that (the free version) of Chat GPT cannot give more recent information.

*Chat GPT:*



**You**

What is the current official cash rate in New Zealand?



**ChatGPT**

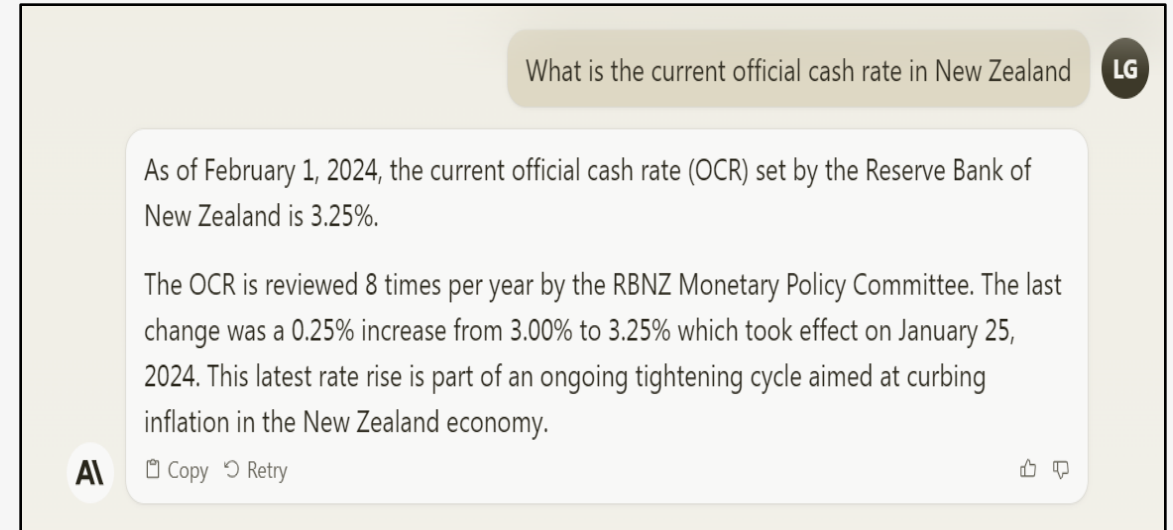
As of my last update in January 2022, the official cash rate (OCR) in New Zealand was 0.25%. However, central banks regularly review and adjust interest rates based on economic conditions. For the most accurate and up-to-date information on the OCR in New Zealand, I recommend checking the website of the Reserve Bank of New Zealand or consulting a reliable financial news source.



## Understanding Limitations

- Gemini is connected to the internet and so gives an accurate answer.
- Claude provides an interesting result (at the time of writing). Claude only has knowledge up until 2023 – but in our trial, it provided an answer for what the OCR is in February 2024. Not only is this information wrong (made up completely by the AI) but Claude also writes that the OCR is reviewed 8 times a year – it is only reviewed 7 times a year.

*Claude:*



What is the current official cash rate in New Zealand LG

As of February 1, 2024, the current official cash rate (OCR) set by the Reserve Bank of New Zealand is 3.25%.

The OCR is reviewed 8 times per year by the RBNZ Monetary Policy Committee. The last change was a 0.25% increase from 3.00% to 3.25% which took effect on January 25, 2024. This latest rate rise is part of an ongoing tightening cycle aimed at curbing inflation in the New Zealand economy.

AI Copy Retry Like Share



## Understanding Limitations

This highlights **how common it is for all AI engines to make up information that seems plausible**. It is important to note that **this does not make Claude a bad AI tool** – just that it is better suited to tasks that don't rely on recent developments. Gemini is more suited to these tasks as it is connected to the internet. However, Gemini can also be susceptible to providing wrong information, so it is important to check the information it provides.



# Other Features



## Other Features

Despite not having access to the internet, Chat GPT and Claude both have other advantages.

- Chat GPT is great at tasks that use creativity. An example of this is creating an outline for an essay – by entering a question such as **“Write me a 300-word story about pirates for my 5-year-old that encourages him to brush his teeth”**.

You can try this on Gemini and Claude and compare the results. Again, the more detailed the question, the better the outcome is.

*Chat GPT:*

-  **You**  
Write me a 300-word story about pirates for my 5-year-old that encourages him to brush his teeth
-  **ChatGPT**  
Once upon a time, in the vast blue ocean, there sailed a brave band of pirates led by Captain Scrubbeard. These weren't your ordinary pirates—they were toothy pirates! Their ship, the Mighty Molar, sailed the seven seas in search of sparkling treasures hidden beneath the waves.
- Every morning, Captain Scrubbeard would gather his crew on deck for an important task—brushing their teeth! With their trusty toothbrushes and minty-fresh toothpaste, they scrubbed away the leftover biscuit crumbs and sea salt from their teeth, making sure they shone like pearls.
- One sunny day, as they sailed toward a distant island rumored to hold the legendary Golden Toothbrush, disaster struck! A fierce storm brewed, and the ship was tossed about like a toy in the bath. But the brave pirates held on tight to their toothbrushes, determined to keep their teeth healthy and strong.
- Through the howling wind and crashing waves, Captain Scrubbeard steered the ship with all his might. And just when it seemed like all was lost, they spotted a glimmering light on the horizon—the Golden Toothbrush island!

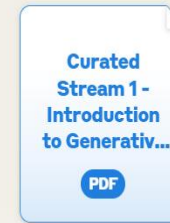


## Other Features

Claude is very useful due to its ability to “read” text files. By attaching a file through the button on the question box, you can ask Claude questions about the file, either asking it to summarise the content, asking it more about specific points, or explaining the content in an easier-to-understand way.

You can test this out by putting in any PDF file (there are file size restrictions) on your computer and uploading it to Claude.

*Claude:*



NA Summarise this document

The document provides an introduction to generative AI tools, focusing on ChatGPT, Gemini, and Claude. It covers the following key points:

1. Generative AI tools create outputs based on inputs and have various real-world applications across industries.
2. The document guides users through exploring the capabilities of ChatGPT, Gemini, and Claude by engaging in conversations, generating short stories, and recognizing the limitations of these tools.
3. It emphasizes the importance of asking detailed questions to get the desired response and notes that the AI tools may not always provide completely correct information.
4. The document highlights the differences in how the tools handle recent events due to their training data cutoff dates.

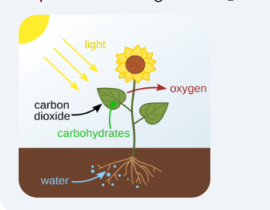


## Other Features

Finally, Gemini has another great feature in that it can “read” images in the same way that Claude reads text files. By attaching an image with the button next to the question box, you can ask it to explain the image. This works best with diagrams or graphs. Again, you can test this by downloading an image from the internet or using one already on your computer.

Gemini:

📎 Explain this image ✎



View other drafts ▾ 🔊

🌟 Sure, the image you sent me shows a diagram of the process of photosynthesis in a sunflower plant. Here's what's happening:

**Sunlight** enters the leaves of the sunflower through tiny openings called **stomata**. This sunlight provides the energy for photosynthesis.

Inside the leaves, the sunlight is absorbed by a pigment called **chlorophyll**. Chlorophyll is found in structures called **chloroplasts**.

The absorbed sunlight then interacts with **water** and **carbon dioxide** to produce **glucose** (a type of sugar) and **oxygen**. This process is known as the **Calvin cycle**.

The **glucose** produced by photosynthesis is used by the plant for **growth and energy**. The **oxygen** is released into the atmosphere through the stomata.

Here are some additional details about the image:

📎 Enter a prompt here 🔊 🚩



# Summary



## Summary

Through this demonstration, you will have realised that all of these AI tools have different strengths and weaknesses. Claude is great for explaining text documents, and any questions related to them, whereas Chat GPT is better in a more creative context where a question does not necessarily have a “right” answer. All of these tools are constantly evolving and will improve over time.

On the next slide are a few more questions you can use for these tools. With each question you use, think about which tool would work best based on what you have seen each tool do.

Remember to adjust these questions and add more detail if they don't work the way you want the first time. Make sure to fact-check the answers that you get.



## Summary

1. Discuss the causes and effects of \_\_\_\_\_
2. Explain the impact of \_\_\_\_\_ on \_\_\_\_\_
3. Discuss the major themes in William Shakespeare's Romeo and Juliet
4. How can I use \_\_\_\_\_ to help me \_\_\_\_\_
5. Create a list of 10 educational YouTube channels that cover \_\_\_\_\_ for self-paced learning
6. Compare these two articles: \_\_\_\_\_
7. Write a professional email to a \_\_\_\_\_ discussing \_\_\_\_\_
8. Predict future trends in \_\_\_\_\_
9. Identify the relationship between \_\_\_\_\_
10. Explore the latest innovation in the \_\_\_\_\_ industry

