FOR SCIENCE TEACHERS

68 chat prompts

Prompts for Science Teachers.

Ready-to-use prompts for planning, teaching and reflection.

The right tool at the right time.
Part of the WISE Framework for Education at choosewise.education.

VOL. 20

Glossary

A few terms that recur throughout this guide. If you already know them, skip ahead to the framework on the next page.

AI — Artificial Intelligence

An attempt to make machines mimic brain functions — to "think" and learn roughly the way humans do. We don't fully understand how the brain works, but we can try to replicate the parts we do understand.

Prompt

An instruction given to a chatbot to get a desired response or task performed.

Iterate

After receiving a response from a chatbot, you refine and clarify the parts you're not satisfied with — sharpening the answer until it's what you want. The better your starting prompt, the fewer iterations you'll need.

Chatbot

A chatbot has been trained to find patterns in large amounts of text. It uses those patterns to generate a response to your prompt. The answer is produced in real time.

GPT

The underlying model (Generative Pre-trained Transformer) that a chatbot uses. The same GPT can power different chatbots — for example, Copilot and ChatGPT have both used OpenAI's GPT.

Generative AI

AI that creates (generates) text, images, video, or sound in real time when prompted to do so.

Bias

AI responses can be skewed or partial, depending on the data the AI was trained on and the biases present in that data. These biases are harder to spot in chatbots than in image-generating AI.

Hallucination

The text you receive from a chatbot is based on patterns in its training data, but word generation also involves randomness — meaning generated words can sometimes create a meaning that simply isn't true.

A framework for writing your own prompts

Role: Act as an experienced physics teacher.

Task: Create a lesson plan that introduces year 8 students to optics.

Context: I teach at a middle school, have 25 students in my class, and the lesson is 60 minutes long.

Format: Link content and activities to the physics curriculum and give me a plan that describes each part of the lesson and the materials required.

Tone: Use a formal but friendly tone.

A few chatbots to know

AI can also generate images and more, but we focus here on chat capabilities.

ChatGPT — OpenAI's chatbot

Gemini — Google's chatbot

NotebookLM — Google's tool that can, among other things, generate a two-voice podcast

Copilot — Microsoft's chatbot

Claude — Anthropic's chatbot

Perplexity — From San Francisco, was early to include source links

Duck AI — DuckDuckGo's chatbot, lets you pick among several GPTs

Mistral AI — A chatbot from France

Most chatbots have age restrictions.

BEFORE YOU START

How to use the prompts

All the prompts are starting points — examples to get you going.
Adapt them to fit your context.

After using a chatbot for a while, you'll learn what kinds of prompts work better or worse. Try the same prompt twice — first as-is, then with the prefix "Act as an experienced expert teacher in [subject]" — and see whether the quality of the response improves. A good response means a good prompt. A poor response means the prompt needs more context or adjustment. Some chatbots are better than others at certain tasks, so if you're not satisfied despite multiple tries, consider switching chatbot.

Brackets and privacy

You paste the prompt text into the chatbot's input field. Wherever brackets *[like this]* appear, replace the text inside with whatever fits your context.

Always double-check the responses — chatbot output is not guaranteed to be accurate.

Note: Think carefully before uploading texts or documents. Never upload personal data or sensitive information. Mind GDPR.

Upper Secondary Science Teachers

01 Create a lesson plan for an Upper Secondary science lesson on *[specific theme, e.g. climate change]*, with three sections focusing on scientific foundations, consequences, and solutions, and a link to *[reference to current curriculum]*.

02 Give me five strategies for teaching Upper Secondary students about *[specific theme, e.g. ecosystems]*, with a practical activity for each and a reflection on its relevance.

03 Write a short guide for introducing *[specific theme, e.g. energy and sustainability]* to a science class, with three steps and an engaging discussion starter.

04 Suggest three ways to use digital tools to teach *[specific theme, e.g. genetic engineering]*, with a simulation for each and a link to *[reference to current curriculum]* goals for digital competence.

05 Create a list of five analysis tasks for a science class on *[specific theme, e.g. biodiversity]*, with a source for each and a critical reflection question.

06 Give me an example of a routine for starting a science lesson on *[specific theme, e.g. space]*, with three steps and a connection to everyday phenomena.

07 Suggest three ways to integrate *[specific theme, e.g. sustainable development]* with fieldwork for Upper Secondary students, with a practical activity for each and a reflection.

08 Create an assessment rubric for a science lesson on *[specific theme, e.g. climate change]*, with three knowledge requirements from *[reference to current curriculum]* and criteria for different grade levels.

09 Give me five ideas for teaching *[specific theme, e.g. human impact on the environment]*, with a creative activity for each and a link to scientific perspectives.

10 Write a short template for planning a science lesson on *[specific theme, e.g. energy]*, with three sections (introduction, analysis, reflection) and a problem-solving task.

11 Suggest three ways to collaborate with a chemistry teacher on a cross-curricular project about *[specific theme, e.g. water chemistry]*, with one idea for each and a goal linked to *[reference to current curriculum]*.

12 Give me an example of a lesson on *[specific theme, e.g. evolution]*, with three steps focusing on scientific method and a discussion task.

13 Create a list of five discussion questions for a science class on *[specific theme, e.g. genetic engineering]*, focusing on ethics and contemporary relevance.

14 Suggest three ways to use current news to teach *[specific theme, e.g. climate change]*, with one article for each and an analysis task.

15 Write a short guide for teaching *[specific theme, e.g. ecosystems]*, with three steps and a link to sustainable development according to *[reference to current curriculum]*.

16 Give me five ideas for making *[specific theme, e.g. space]* more engaging for Upper Secondary students, with a practical activity for each and a rationale.

17 Suggest three ways to assess students' understanding of *[specific theme, e.g. energy and sustainability]*, with one method for each and a link to *[reference to current curriculum]* knowledge requirements.

18 Create a plan for a science lesson on *[specific theme, e.g. biodiversity]*, with three sections and a closing reflection task on social relevance.

19 Give me an example of an experimental activity on *[specific theme, e.g. water quality]*, with three steps and an analysis of results linked to *[reference to current curriculum]*.

20 Write a list of three short ways to connect *[specific theme, e.g. genetic engineering]* to students' everyday lives, with one question for each and a link to *[reference to current curriculum]*.

21 Create a detailed plan for a project on *[specific theme, e.g. sustainable development]* for a science class, with three lessons focusing on scientific perspectives and solutions.

22 Give me five strategies for teaching *[specific theme, e.g. climate change]*, with an experimental activity for each and a link to scientific processes.

23 Write a short guide for using debate in a science lesson on *[specific theme, e.g. genetic engineering]*, with three steps and an analysis of ethical perspectives.

24 Create a list of five creative writing tasks for a science class on *[specific theme, e.g. energy]*, with instructions for each and a link to sustainability.

25 Give me an example of a routine for closing a science lesson on *[specific theme, e.g. space]*, with three steps and a reflection question.

26 Suggest three ways to use fieldwork to teach *[specific theme, e.g. biodiversity]*, with a field task for each and a data analysis component.

27 Write an assessment task for a science class on *[specific theme, e.g. evolution]*, with three levels and criteria linked to *[reference to current curriculum]* knowledge requirements.

28 Give me five ideas for teaching *[specific theme, e.g. human impact on the environment]*, with a practical activity for each and a reflection on scientific methods.

29 Write a short template for planning a science lesson on *[specific theme, e.g. climate change]*, with three sections and a link to *[reference to current curriculum]* goals for critical thinking.

30 Suggest three ways to collaborate with a biology teacher on a cross-curricular theme about *[specific theme, e.g. ecosystems]*, with one idea for each and a goal.

31 Give me an example of a discussion on *[specific theme, e.g. energy and sustainability]*, with three questions and a method for assessing student participation.

32 Create a list of five analysis tasks for a science class on *[specific theme, e.g. genetic engineering]*, with a source for each and a critical analysis question.

33 Suggest three ways to use everyday examples to teach *[specific theme, e.g. water quality]*, with a demonstration for each and a reflection on the phenomenon.

34 Write a short guide for teaching *[specific theme, e.g. biodiversity]*, with three steps and a link to scientific method according to *[reference to current curriculum]*.

35 Give me five ideas for connecting *[specific theme, e.g. climate change]* to contemporary social issues, with one question for each and a rationale.

36 Suggest three ways to assess students' scientific reasoning about *[specific theme, e.g. space]*, with one method for each and a link to *[reference to current curriculum]*.

37 Create a plan for a science lesson on *[specific theme, e.g. sustainable development]*, with three sections and a discussion on social responsibility.

38 Give me an example of a problem-solving task on *[specific theme, e.g. ecosystems]*, with three steps and an analysis of results linked to *[reference to current curriculum]*.

39 Write a list of three short ways to use digital tools to teach *[specific theme, e.g. energy]*, with one resource for each and a link to *[reference to current curriculum]*.

40 Suggest three ways to integrate *[specific theme, e.g. ecosystems]* with geography, with a cross-curricular activity for each and a goal linked to *[reference to current curriculum]*. Ecology and the Environment

41 Write a 200-word text on the impact of climate change on Sweden's ecosystems for Science 1b and create 5 discussion questions focusing on consequences and solutions. Generate a 150-word case study on eutrophication in the Baltic Sea for Science 2 and write 4 questions that encourage students to analyse causes and measures.

42 Create a list of 10 Swedish animal species threatened by environmental change and provide a task for Science 1a where students write a short report on one species and its challenges.

43 Write a 200-word text on biodiversity in Swedish forests for Science 1b and create 5 questions that test students' understanding of the concept and its significance. Generate a 150-word text on Sweden's work with sustainable development for Science 2 and write 4 questions that encourage students to reflect on global and local perspectives.

44 Create a task for Science 1a where students analyse how deforestation affects carbon dioxide levels and provide 5 supporting questions to help them structure their analysis.

45 Write a 200-word text on how plastic pollution affects marine ecosystems in Sweden for Science 1b and create 5 discussion questions about how individuals and society can reduce plastic use. Generate a 150-word case study on a Swedish national park for Science 2 and write 4 questions focusing on the park's role in preserving biodiversity.

46 Create a list of 5 environmental problems in Sweden and provide a task for Science 1a where students write an argumentative text on why one of the problems is most urgent.

47 Write a 200-word text on how climate change affects Swedish agriculture for Science 1b and create 5 questions that encourage students to discuss adaptation strategies. Chemistry and Biology

48 Write a 200-word text on the role of photosynthesis in ecosystems for Science 1b and create 5 questions that test students' understanding of the process and its significance. Generate a 150-word text on how DNA technology is used in Sweden for Science 2 and write 4 questions focusing on ethical and practical aspects.

49 Create a list of 10 chemical substances found in everyday life and provide a task for Science 1a where students investigate one substance's properties and uses.

50 Write a 200-word text on how food chains work in Swedish lakes for Science 1b and create 5 questions that test students' understanding of the roles of producers and consumers. Generate a 150-word text on antibiotic resistance in Sweden for Science 2 and write 4 questions that encourage students to reflect on causes and solutions.

51 Create a task for Science 1a where students draw and describe a simple food web in a Swedish forest and provide 5 supporting questions to help them explain the relationships.

52 Write a 200-word text on how pH levels affect life in Swedish waterways for Science 1b and create 5 questions focusing on chemical and biological effects. Generate a 150-word text on the opportunities and risks of genetic engineering for Science 2 and write 4 discussion questions about ethical dilemmas.

53 Create a list of 5 biological processes that are essential to life and provide a task for Science 1a where students write a short text on one process and its significance.

54 Write a 200-word text on how the human body is affected by air pollution for Science 1b and create 5 questions that test students' understanding of biological and chemical effects. Physics and Energy

55 Write a 200-word text on Sweden's use of renewable energy for Science 1b and create 5 discussion questions about the advantages and challenges of different energy sources. Generate a 150-word text on how solar energy works and is used in Sweden for Science 2 and write 4 questions focusing on physical principles and practical applications.

56 Create a list of 5 physical phenomena that affect everyday life and provide a task for Science 1a where students write a short report on one phenomenon and its effects.

57 Write a 200-word text on how the greenhouse effect works for Science 1b and create 5 questions that test students' understanding of physical processes and climate impact. Generate a 150-word text on the role of nuclear power in Sweden's energy production for Science 2 and write 4 questions that encourage students to discuss safety and sustainability.

58 Create a task for Science 1a where students investigate how heat transfer works in a house and provide 5 supporting questions to help them explain convection and conduction.

59 Write a 200-word text on how wind turbines work for Science 1b and create 5 questions focusing on physical principles and environmental impact. Generate a 150-word text on how the refraction of light is used in technology for Science 2 and write 4 questions that test students' understanding of optics and its applications.

60 Create a list of 5 energy sources used in Sweden and provide a task for Science 1a where students write an argumentative text on which source is most sustainable.

61 Write a 200-word text on how electricity is produced in Sweden for Science 1b and create 5 questions that encourage students to reflect on energy losses and efficiency. Scientific Method and Social Perspectives

62 Write a 200-word text on how scientific method is used to study climate change for Science 1b and create 5 questions focusing on hypotheses, experiments, and conclusions. Generate a 150-word case study on a Swedish research study in environmental science for Science 2 and write 4 questions that encourage students to analyse the study's method and results.

63 Create a list of 5 ethical dilemmas in science and provide a task for Science 1a where students write an argumentative text on one dilemma and its consequences.

64 Write a 200-word text on how scientific discoveries have affected society in Sweden for Science 1b and create 5 discussion questions about the role of science in social development. Generate a 150-word text on how to design a scientific investigation for Science 2 and write 4 questions that test students' understanding of variables and control groups.

65 Create a task for Science 1a where students plan a simple investigation into water quality in a local lake and provide 5 supporting questions to help them structure their method.

66 Write a 200-word text on how the media reports on scientific issues for Science 1b and create 5 questions that encourage students to reflect on credibility and source criticism. Generate a 150-word text on how international scientific collaboration has influenced environmental work for Science 2 and write 4 questions focusing on global perspectives.

67 Create a list of 5 scientific discoveries from Sweden and provide a task for Science 1a where students write a short report on one discovery and its impact on society.

68 Write a 200-word text on how science can contribute to solving global problems for Science 1b and create 5 discussion questions about the possibilities and limitations of science.

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