

Bold = explanation

In quotation = prompt

In creating our plant care tasks, we prompted ChatGPT to produce the MCQ options: based on our interpretations of what we were expecting (authoritative advice, assuming it would understand our intent. Here is one of our prompts in this category:

“

You are creating the transcript messages for a mock assessment for a study. The assessment will take on the form of the participant acting as a greenhouse intern, provided with 20 plant care related tasks to complete in 40 minutes. You will be provided with the plant name, a description of what is wrong with the plant, a diagnosis, and the correct treatment. The user will also be presented with an image of the plant for their informing. Provide a brief blurb introducing the plant, observed description of what is wrong, and a suspected diagnosis. Then, provide 3 other relatively similar, but incorrect answers for a multiple choice question that align with the correct treatment.

“

Upon reviewing its initial output, we redirected it, using prompts such as:

“

reformat the mcq so that it is first the suspected diagnosis, and then the appropriate treatment

“

At this point, we were satisfied with its output so we fed it all of our sample plant care scenarios so that it may produce the possible Multiple Choice answers:

“yes: Plant Name Links Description Diagnosis Correct Treatment

Peace Lily <https://gardenerspath.com/plants/houseplants/wilting-peace-lily/> Leaves are soft and flacid Wilted Watering

Tomato

<https://www.aces.edu/blog/topics/lawn-garden/blossom-end-rot-in-tomatoes-causes-and-prevention/> Leathery, coin sized rot patch at the blossom-end of the tomato Blossom End Rot
Apply Calcium source

Potato <https://lectorium.phosagro.com/upload/iblock/17c/908p4og65l7avpr4fltlyk88ohqiuar1.pdf>

Older leaves are yellow and pale Nitrgen Deficiency Apply Nitrogen fertilizer

Tomato

<https://aggie-horticulture.tamu.edu/vegetable/problem-solvers/tomato-problem-solver/leaves/phosphorus-deficiency/#:~:text=Phosphorus%20deficiency%20is%20most%20often,field%2C%20take%20up%20phosphorus%20poorly.> Darkening of the leaves from the veins outward;
Phosporous Deficiency Apply Phosporous fertilizer

Cucumber Leaves

<https://www.haifa-group.com/cucumber-0/crop-guide-nutrients-cucumber#%7B216DD1C8-03D2>

-4F79-8A42-AED85EE6E7FB%7D Older leaves at the bottom of the vine are yellow and pale; Nitrogen Deficiency (right-hand side) Apply Nitrogen fertilizer

Common Milkweed <https://bygl.osu.edu/node/470> Aphids (tiny, pear shaped insects) are clustered on the underside of the leaf Aphid Infestation apply insecticide or horticultural oils, manually remove aphids, encourage aphid predators.

Cabbage <https://extension.entm.purdue.edu/4h/default.php?page=snr11&stage=damage> Holes along the leaf Cabbage worm damage Apply insecticide or horticultural oils, manually remove cabbage worms, encourage cabbage worm predators, cover crop row/bed.

Pear tree https://en.wikipedia.org/wiki/Fire_blight Parts of the twigs and branches are dead with leaves, fruits, and blossoms appearing shriveled and black Fireblight Prune off dead branches 6-12 inches below where the symptoms end, apply bactericide

Soy Bean

<https://www.yara.co.uk/crop-nutrition/soybean/nutrient-deficiencies-soybean/potassium-deficiency-soybean/> Leaves becoming yellow from the outside inward Phosphorous deficiency Apply Phosphorous fertilizer

Cucumber Plant

<https://www.haifa-group.com/cucumber-0/crop-guide-nutrients-cucumber#%7B216DD1C8-03D2>
-4F79-8A42-AED85EE6E7FB%7D Use website as source for formal/scientific language

Various P-toxicity symptoms on a cucumber plant. Use cover crops to uptake phosphorous in the soil, stop using phosphorous rich fertilizers, flush soil with water, apply other nutrients to balance the soil.

Squash <https://extension.usu.edu/vegetableguide/cucurbits/powdery-mildew> white powdery spots over and under the leaves Powdery Mildew remove infected leaves, apply fungicide

Cucumber leaf

<https://www.haifa-group.com/cucumber-0/crop-guide-nutrients-cucumber#%7B216DD1C8-03D2>
-4F79-8A42-AED85EE6E7FB%7D White powdery spots covering the surface of the leaf

Powdery mildew Treat by spraying potassium nitrate

Peach Tree

<https://bygl.osu.edu/node/1895#:~:text=Even%20if%20PLC%20may%20not,tree%20may%20produce%20new%20foliage.> Leaves form this red growths that make the leaf curl up and fall off; Peach leaf curl. Apply fungicide to entire tree after leaves have shed in the fall.

Cucumber leaf

<https://www.haifa-group.com/cucumber-0/crop-guide-nutrients-cucumber#%7B216DD1C8-03D2>
-4F79-8A42-AED85EE6E7FB%7D Small reddish-brown spots appear between the veins of the oldest leaves of Mn-excessive cucumber leaves Manganese toxicity "Manganese toxicity in soil-grown crops is associated with acidic conditions and waterlogging. Correction therefore involves liming and improving drainage and irrigation scheduling.

"

Bean Plant <https://www.almanac.com/pest/spider-mites> Pale speckled spots or freckles on the surface of the leaves; spider mites Physically remove spider mites and apply insecticides or horticultural oils. Keep soil moist

Swiss chard <https://extension.umd.edu/resource/swiss-chard-and-spinach-leafminers-active/>
Irregularly shaped patches on the leaf surface that appear pale, discolored, and/or dead Leaf miner Apply insecticides or horticultural oils, encourage natural predators, keeps beds/rows covered.

Soya Bean

https://www.yara.co.uk/crop-nutrition/soybean/nutrient-deficiencies-soybean/calcium-deficiency-soybean/?_gl=1*9eosus*_up*MQ..*_ga*MjEzMzcyODkzLjE3NjE0MTU0Njl.*_ga_WQXJ27MV12*cxE3NjE0MTU0NjlkbzEkZzEkdDE3NjE0MTU0NzMkajQ5JGwwJGg2OTcxMzl2NDc. add description as part of the test to aid with identification Striking leaf symptoms due to Ca deficiency: drop-like, whitish to bluish spots occur on the leaf blade. Necroses of the same color expand along the leaf margin - Necrosis Apply Calcium source

Soya Bean

https://www.yara.co.uk/crop-nutrition/soybean/nutrient-deficiencies-soybean/phosphorus-deficiency-soybean/?_gl=1*ux5wbm*_up*MQ..*_ga*MjEzMzcyODkzLjE3NjE0MTU0Njl.*_ga_WQXJ27MV12*cxE3NjE0MTU0NjlkbzEkZzEkdDE3NjE0MTYyNjUkajE0JGwwJGg2OTcxMzl2NDc.

Upper leaves turn yellow and become mottled with small, brown necrotic spots. Leaf margins are bent down and internodes are shortened Boron deficiency Apply boron source

Citrus tree <https://www.epicgardening.com/citrus-leafminer/> Irregular white or discolored lines across the surface of the leaf Leaf Miner Apply insecticide or horticultural oils, prune heavily-infested leaves and branches, encourage predator populations.

Strawberry plant Strawberry Deficiency Symptoms, 1980. Ulrich et al, Berkeley, California (picture),

<https://www.haifa-group.com/crop-guide/vegetables/strawberry-fertilizer/crop-guide-strawberry-1>
Potassium deficiency on a strawberry leaf, darkening and necrosis of leaflet basis and center Potassium Deficiency Apply potassium before planting and during early fruit development.

Tomato <https://urbantomato.ca/hornworm-damage-cause-effect/> Parts of the fruits, leaves, and stems have large holes and appear to be eaten. Horn worm Apply insecticide or horticultural oils, hand remove hornworts, till soil between crops to destroy larvae or pupae in soil, encourage natural predators. “

We then prompted it to produce the plant care advice component. We initially based the prompt on our interpretations of what we were expecting (authoritative advice, assuming it would understand our intent. Here is one of our prompts in this category:

“

You are tasked with providing advice for a mock assessment for a study. The assessment will take on the form of the participant acting as a greenhouse intern, provided with 20 plant care related tasks to complete in 40 minutes. the participant will be provided with a picture of the plant and must decide what treatment is the most correct. your role is that, given a plant's name, symptoms, and diagnosis, I will tell you what the correct treatment is and you, Dr.Herbal who knows a lot about plant care and a renowned expert in the botanical field, will provide an explanation as to why that treatment is correct using authoritative tone in your reasoning. the

first one is: You approach a Peace Lily in the greenhouse whose leaves appear limp and drooping. The stems are soft and the soil feels dry several inches below the surface. . the correct answer is A. water the plant thoroughly until water drains from the pot base. the other ones are: B. repot in dry soil and reduce watering frequency C. apply a balanced houseplant fertilizer D. move the plant to full sunlight “

We again, provided prompts meant to redirect its output:

“

condense into a length suitable to be read in under a minute and 20 seconds

“

However, it was brought to our attention that this unmethological approach disallows those seeking to engage with our research to reproduce our work. So, we decided to create new prompts, using the help of ChatGPT by first feeding it the Milgram study we reference in our study, and asking if it understands it so that we may get an idea of its interpretation:

“

Here is the paper from shock experiment and the textbook reading from it. tell me how an authority figure is defined and the traits they have

“

Once it confirmed the traits we would expect, we then asked it to help use produce a well-structured prompt that is based on our intent for the study (authority/non-authority AI):

“

If I were to write a prompt to generate statements that emulate the authority figure tone/voice, how would I write that?

“

“

Here is my prompt for the authority tone/voice. how would we write a prompt that doesn't use an authoritative tone. we only want to change the tone, not the rest of the language of the prompt

Act as a botany professor who is the supervisor of a botany intern. Use the voice of a calm, confident authority figure. The tone should be firm, precise, and fact-based. Use declarative and imperative sentences. Avoid all hedging or speculative language. Ensure to not include words like maybe, perhaps, or it seems. Reference logic, evidence, or institutional reasoning when justifying actions. Maintain emotional neutrality while projecting confidence, legitimacy, and intellectual authority.

“

For precision, we also asked it to produce a non-authoritative prompt. Our final prompts were as follows:

Authoritative:

“

Act as a botany professor who is the supervisor of a botany intern. Use the voice of a calm, confident figure. The tone should be firm, precise, and fact-based. Do not use declarative and imperative sentences. Use hedging or speculative language 50% of the time. Include words like maybe, perhaps, or it seems. Reference logic, evidence, or institutional reasoning when justifying actions. Maintain emotional neutrality while projecting confidence, legitimacy, and intellect. Use the 11th grade reading level in your response. I will provide you with a scenario and a solution. write a brief piece of advice that is approximately 60 words supporting the solution to the scenario with your role and tone provided.

“

Non-Authoritative:

“

Act as a botany professor who is the supervisor of a botany intern. Use the voice of a calm, confident figure. The tone should be firm, precise, and fact-based. Do not use declarative and imperative sentences. Use hedging or speculative language __ % of the time. Include words like maybe, perhaps, or it seems. Reference logic, evidence, or institutional reasoning when justifying actions. Maintain emotional neutrality while projecting confidence, legitimacy, and intellect. Use the 11th grade reading level in your response.

“