CROP HELP
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TEACHER GUIDE · GRADES 7–12

Inquiry-Based Learning with Crop Help

A practical guide to using Crop Help — an AI plant-diagnosis tool — to drive student inquiry in science, environmental studies, and agriculture. Crop Help is designed to **support, not replace**, student thinking: it gives students something to investigate, question, and verify, while building the AI-literacy skills school boards are prioritizing.

Grade band	Grades 7–12 (see grade-band note below)
Subjects	Science, Biology, Environmental Science, Geography, AgriTech / SHSM
Prep time	10–15 minutes
Class time	One 60–75 min period, or a multi-week grow-and-diagnose cycle
You'll need	A plant or plant photo, a device with a camera or browser, Crop Help access

A note on grade bands
In line with board AI guidance: for Grades 7–12, students can use Crop Help directly. For Kindergarten–Grade 6, use Crop Help as a teacher-guided, whole-class demonstration — you operate the tool and lead the discussion — rather than having students use the AI independently. This guide is written for 7–12; the same inquiry structure works for a teacher-led K–6 lesson.

Why Crop Help Works for Inquiry

Inquiry-based learning asks students to investigate a question, gather evidence, and build understanding — rather than receive answers. Crop Help fits this naturally because **an AI diagnosis is a claim to be tested, not a fact to be accepted.** The confidence score built into every result gives students a reason to pause, question, and verify — turning the tool into a starting point for thinking rather than an endpoint.

The move that makes it inquiry: never let the AI's answer be the last word. Every diagnosis should lead to "How do we know? What else could it be? What would we check?"

A Ready-to-Use Inquiry Cycle (5E)

This maps Crop Help onto the familiar Engage–Explore–Explain–Elaborate–Evaluate model. Adapt timings to your period.

Phase	Time	What happens
Engage	5 min	Show a photo of a struggling plant (or bring in a real one). Ask: "What do you notice? What do you wonder? What do you think is wrong?" Record student predictions before any AI is used.
Explore	15 min	Students (7–12) photograph the plant and run a Crop Help diagnosis. They record the diagnosis, the confidence score, and the suggested treatment — but do not accept it yet.
Explain	15 min	Students compare the AI's diagnosis to their own observations and predictions. Where do they agree or differ? What in the plant supports or contradicts the AI? Introduce or reinforce the underlying science (plant structure, disease, environmental stress).

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Phase	Time	What happens
Elaborate	15 min	Students verify: check a second source, test the AI on a known/healthy plant, or photograph the same plant differently to see if the diagnosis changes. They discuss why AI can be confident and still wrong (“hallucinations,” poor image, rare cases, bias in training data).
Evaluate	10 min	Students state a final, evidence-based conclusion in their own words, explaining how they used Crop Help and where their own reasoning went beyond it. This is the assessment moment — and models honest, credited AI use.

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Running the Lesson: Step by Step

Before class (10–15 min prep)

1. Choose your plant. A stressed or diseased specimen is ideal (over/under-watered, nutrient-deficient, pest damage). A photo works if a live plant isn't available.
2. Confirm access. Make sure students can reach Crop Help on their devices, using the account model your board chose (shared class login or per-student).
3. Prepare an observation sheet with columns for: what I notice, my prediction, AI diagnosis, AI confidence, my verification, my conclusion.

During class

4. Predict first. Students record observations and a prediction before touching the AI. This protects real inquiry — the AI shouldn't anchor their thinking.
5. Diagnose. Students photograph the plant and run Crop Help, recording the diagnosis and confidence score.
6. Compare. In pairs, students discuss where the AI matches or contradicts their observations.
7. Verify. Students test the result — a second source, a re-photo, or a known plant — and note what they find.
8. Conclude. Students write an evidence-based conclusion in their own words and state how they used the AI.

After class

9. Debrief the AI itself: When was Crop Help helpful? When was it wrong or uncertain? What does that teach us about using AI anywhere?

Inquiry Questions to Drive Discussion

About the plant (science)

- What evidence in the plant supports the diagnosis? What evidence doesn't?
- What are two other possible explanations for what we're seeing?
- What would we need to observe or test to be more sure?

About the AI (AI literacy)

- What does the confidence score mean? Would you trust 95% the same as 55%?
- How might the photo have affected the result? What makes a good diagnostic photo?
- Why can an AI be confident and still wrong? What is a "hallucination"?
- Whose data trained this tool, and how could that create blind spots or bias?

Extensions & Cross-Curricular Ideas

- **Grow-and-diagnose cycle:** pair with Farm in a Box or a class garden. Students plant, monitor weekly, diagnose issues as they arise, and track how the plant responds to treatment over several weeks.
- **Environmental science:** connect plant stress to soil, water, and climate factors; discuss sustainable agriculture and food systems.

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- **AgriTech / SHSM:** frame the workflow as precision agriculture — diagnose, interpret confidence, decide on treatment — as a sector-based skill.
- **Data & AI studies:** have students design a fair test to evaluate how accurate the AI is across different plants or photo conditions.
- **Media literacy / writing:** students write a short “second opinion” report that agrees or disagrees with the AI and justifies their stance.

Assessment Ideas

The inquiry naturally produces assessable evidence of thinking, not just a right answer:

- **Observation sheet:** quality of observations, predictions, and verification steps.
- **Reasoning:** does the student’s conclusion go beyond the AI and cite specific evidence?
- **AI literacy:** can the student explain the confidence score and a limitation of the tool?
- **Academic integrity:** did the student clearly and honestly describe how they used Crop Help?

Responsible Use & Privacy (for Teachers)

- **Model verification.** Always treat a diagnosis as a claim to check, and say so out loud — you’re teaching a habit, not just a plant.
- **Photograph plants, not people.** Remind students to keep faces and personal surroundings out of photos; location is off by default.
- **No personal information.** Students don’t need to enter names or personal details for class use.
- **Credit AI use.** Reinforce that describing how AI helped is part of doing the work honestly — not a shortcut around it.

How student data is handled

Crop Help is built as an enterprise, classroom tool: student data is stored in Canada, is never used to train AI models, requires no student names or profiles, and is deleted or returned to your board on request. Your board is the data custodian. Full details are in the Schools section of the Crop Help Privacy Policy.

This guide offers example activities for teacher planning. It is not endorsed by the Ontario Ministry of Education or any school board, and does not replace your board’s AI guidelines or approval process. Crop Help is a product of STEM Minds Corp.

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