# Graduation Performance System (GPS)

## Grade 10 Science Performance Outcomes and "I Can" Statements

INVESTIGATE THE WORLD

**Students use scientific procedures and disciplines to investigate natural and human global phenomena.**

I can use science to investigate global phenomena.

- **SCI09-10.INV1. Formulate questions about a global science issue and develop a hypothesis/research thesis.**
  - I can identify a global science issue. This means I can write down a science issue that affects the world. It also means I can narrow that issue down enough to ask a question about it for which I don't know the answer.
  - I can formulate a question about a global science issue. This means I can write a question about a global issue for which I don't know the answer, but which I think can be tested or researched. I can develop a specific, clear, and focused hypothesis or research thesis. This means I can write a possible answer to my question that can be tested scientifically or researched to determine if the answer I have come up with is supported by data.
- **SCI09-10.INV2. Gather background information from a variety of sources; compare and analyze it, providing some support for the hypothesis/research thesis.**
  - I can gather information to support a hypothesis or thesis. This means I can locate at least four sources to support my hypothesis or thesis. It also means that I gather at least two sources of secondhand descriptions (secondary data). It also means that I can locate at least two data sources that take a global point of view.
  - I can compare information sources. This means I can describe the similarities and differences in my information sources. It also means I can explain in my own words differences that may eliminate a source as support for my hypothesis or thesis due to opposing conclusions.
  - I can analyze the information provided by each source. This means I can examine in detail the important elements of ideas presented in the sources and use my own words to describe the analysis.
  - I can use information sources to support my hypothesis/research thesis. This means that I can clearly support at least some of the contentions of my hypothesis/research theory.

- **SCI09-10.INV3. Identify an existing theory and/or model related to an experimental hypothesis/research thesis and analyze the credibility of the theory and/or model.**
  - I can identify an existing theory/model related to a hypothesis. This means I can locate an existing theory and/or scientific model that relates to my hypothesis or research thesis.
  - I can evaluate the credibility of an existing theory and/or model related to a hypothesis. This means I can describe in my own words an existing theory and/or scientific models related to my hypothesis or research thesis. It also means if I need help in understanding the theory or model, I locate a source of help.

- **SCI09-10.INV4. Design an experiment that partially tests the hypothesis/research thesis using appropriate technology; analyze data from the experiment and a conclusion follows logically from the evidence to support the hypothesis/research thesis.**

- I can design an experiment to partially test a hypothesis. This means that, in my own words, I can describe an experiment that tests my hypothesis as fully as possible. It also means the experiment is designed to focus on the variable(s) being tested/researched.
- I can use appropriate technology in an experiment. This means I know how to use the appropriate technology responsibly, effectively, and skillfully. It also means if I need help in using the technology, I locate a source of help.
- I can analyze data from the experiment. This means that I can describe in my own words the data from my experiment and what it means in relation to my hypothesis/research theory.
- I can come to logical conclusions supported by evidence. This means I can write a conclusion for my hypothesis/research thesis that follows logically from my experimental data and supports my hypothesis/research thesis.

RECONGIZE PERSPECTIVES

**Students interpret and discuss scientific data in the context of complex global systems.**

I can interpret scientific data in the context of complex global systems.

- **SCI09-10.PERS1. Explain a local/global science issue; use at least two contexts and differing points of view and discuss how each influences the issue.**
  - I can identify at least two contexts to explain a global issue. This means I can list at least two different interests or interrelationships affecting a local/global science issue and describe how they each influence the issue.
  - I can present at least two differing points of view to explain a local/global science issue. This means I can describe the points of view in my own words explaining how and why they interpret the issue differently.

- **SCI09-10.PERS2. Analyze patterns and relationships in data by applying basic mathematical or statistical methods; identify and interpret some experimental error and/or inconsistencies in the data (if present); and draw a conclusion about the hypothesis or research thesis.**
  - I can find data related to a hypothesis or research thesis. This means I can locate or produce data that relates to my hypothesis or research thesis.
  - I can analyze data patterns and relationships in data. This means I can apply some basic mathematical or statistical techniques to the data to identify and interpret possible sources of error or other data inconsistencies.
  - I can draw conclusions based on data. This means I can describe conclusions about my hypothesis or research thesis and my conclusions are supported by my interpretation of the data.
  - I can evaluate the hypothesis or research thesis based on data. This means I can determine the value of the data I located in relation to supporting my hypothesis or research thesis.

- **SCI09-10.PERS3. Pose additional questions that extend the original research question, and respond to the implications of the experimental or research findings from a different perspective.**
  - I can form new questions based on my results. This means I can write at least two relevant questions on a local/global science issue that are brought up by my experiment or research. It also means I don't know the answer to the questions and the questions focus on a different perspective or aspect of the global issue that I investigated in my experiment or research.

COMMUNICATE IDEAS

**Students discuss global implications of scientific ideas, research, or inquiry results and offer personal reflections.**

I can discuss the global implications of scientific ideas and research.

- **SCI09-10.COMM1. Describe experimental and/or research procedures in sufficient detail to be understood and use a bibliographic format that is consistent for each type of reference or citation.**
  - I can describe experimental and/or research procedures. This means I can describe in my own words the process I used in my experiment or my research. It also means my description attempts to be precise enough that someone else would understand the experiment or research using my description.
  - I can use a bibliographic format that is consistent. This means that I write the information for each type of reference in the same way. It also means that someone else would be able to locate the original source of the citations I used in my experiment or research.

- **SCI09-10.COMM2. Present data with visual representations that support explanation of the issue; experimental or research presentation follows most conventions of scientific communication.**
  - I can present data with visual representations. This means I can present data using visual representations (tables, graphs, charts, slides, etc.) that support the explanation of my issue.
  - I can create a presentation that applies conventions of scientific communication to my ideas. This means I can present numerical and observational data—including tables, graphs, charts, and/or journal entries—following standard scientific conventions. It also means that, if I am unfamiliar with standard scientific conventions, I locate a source of information about them.

- **SCI09-10.COMM3. Use technology and media to express and discuss scientific ideas and for collaboration beyond the classroom.**
  - I can use technology and media to express and discuss scientific ideas. This means I can use appropriate technology, and media to communicate scientific ideas. I can also use appropriate technology to discuss scientific ideas. It also means that if I do not know how to use the appropriate technology or media, I can locate help to learn it.
  - I can use appropriate technology and media to collaborate on scientific ideas beyond the classroom. It also means that if I do not know how to use the appropriate technology or media for collaboration, I can locate help to learn it.

- **SCI09-10.COMM4. Choose communication formats that support the discussion of a scientific issue, including personal reflections.**
  - I can choose a communication format for a science issue. This means I can choose a type of communication strategy and format that will support the discussion of the science issue. It also means that the communication strategy/format allows for the inclusion of personal reflections.

TAKE ACTION

**Students translate scientific inquiry or research results into actions intended to increase awareness and improve global conditions.**

I can take action based on my scientific inquiry or research results.

- **SCI09-10.ACT1. Develop an action plan that proposes a collaborative action or policy related to experimental or research findings and that has the potential to improve some condition.**
  - I can develop an action plan based on experimental or research findings. This means that I can work with others to develop an action plan that proposes an action or policy and that the action or policy, if implemented, has the potential to improve some aspect of the local/global science issue from my experimentation and research.

- **SCI09-10.ACT2. Evaluate available technology and personal views to determine their impact on actions and consider ways to address alternate viewpoints or solutions.**
  - I can evaluate available technology to determine its impact on actions. This means I can describe in my own words the positive and/or negative impact technology might have on my plan for positive change. It also means I can consider what technology needs to be available in order to accomplish my plan.
  - I can determine how possible actions for positive change can be influenced by various viewpoints. This means I can describe in my own words how various points of view (including alternative points of view) can influence my plan for positive change.
  - I can consider ways to address alternate viewpoints or solutions. This means that I can describe how my action for positive change might be modified, even if only in a limited way, to address other points of view or possible solutions to the science issue.

- **SCI09-10.ACT3. Implement an action plan, collect data to identify changes in the local/global issue, and analyze the effect of some actions.**
  - I can implement an action plan. This means I can take actions following and revising a plan as needed to bring about positive change.
  - I can collect data related to changes in the local/global science issue. This means I can collect appropriate data about positive, negative, or null changes related to the issue and resulting from actions taken.
  - I can analyze data related changes in the local/global issue. This means I can explain, in my own words, the data evidence related to changes in the global issue.

- **SCI09-10.ACT4. Describe how the project influenced personal thinking about the issue.**
  - I can reflect on how the project influenced me. This means I can consider how my experiment or research project influenced my thinking.
  - I can articulate how the project has affected me. This means I can describe in my own words how I felt about my experiment or research project and any changes that happened in my attitude, emotions, or commitment.