Self- Evaluation Checklists

These checklists are designed to allow students to self-assess their understanding. The checklists use student friendly science language that aligns with the Georgia Standards of Excellence for the different grade levels.

The following checklist are available:

Kindergarten- SKL2
1st grade- S1L1
2nd grade- S2L1
3rd grade- S3L1
4th grade- S4L1
5th grade- S5L3
6th grade- S6E2
7th grade- S7L2
8th grade- S8P5
Biology- SB1 option 1 or SB1 option 2
Chemistry- SC3
Physical Science- SPS1
Earth Systems- SES6
Environmental Science- SES6
Physics- SP6
How to use:

Teacher directions: Give the students the relevant self-evaluation tool section as you move through the unit. Dotted lines have been provided to assist in dividing the sections of the tool based on the standard elements. At first, help students fill it in but after doing it with them a few times let the students use it as they see fit. Help the students see that it can be used to identify areas that they are excelling in and areas where they need help. Feel free to refer to this when students are struggling with the material or come for tutoring. Also note, the underlined and italicized science and engineering practices and the bolded cross cutting concepts* that are highlighted throughout the checklist.

K-2 teachers should use the checklist to evaluate and discuss progress with students based on the science standards and science lessons that are done in class. First and second grade have two options provided to allow choice in how to accomplish this. One of the options does not contain images and the other option contains images to go along with the checklist. Keep in mind that the images are to help assist students in understanding the checklist not to limit or push teaching concepts below or above the standard.

*Multiple crosscutting concepts can match each standard. The crosscutting concept that fits best is dependent on the way in which the DCI and SEP are presented in class. These checklists just contain suggestions of crosscutting concepts that could be used but should not limit teacher choice for the CCC. *
Kindergarten

SKL2 Teacher Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

- Construct an argument using evidence for how animals can be grouped* according to their features.
- Construct an argument using evidence for how plants can be grouped* according to their features.
- Ask questions and make observations to identify similarities and differences* of offspring to their parents and other members of the same species.

*The crosscutting concept here is patterns.*
First grade

S1L1 Teacher Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

☐ Develop models to identify parts\(^\wedge\) of the plant.
  ☐ Root
  ☐ Stem
  ☐ Leaf
  ☐ Flower

\(^\wedge\)The crosscutting concept is systems.\(^\wedge\)

☐ Ask questions to compare and contrast\(^*\) the needs of plants\(^*\) and animals\(^*\).
  ☐ Air \(^+\)
  ☐ Water \(^+=\)
  ☐ Light \(\uparrow\)
  ☐ Nutrients \(\uparrow\)
  ☐ Food \(=\)
  ☐ Shelter \(=\)

\(^*\)The crosscutting concept is patterns.\(^*\)

☐ Design a solution to be sure that a plant or animal\(^\wedge\) has all its needs met.

\(^\wedge\)The crosscutting concept is systems.\(^\wedge\)
First grade

S1L1 Teacher Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

- Develop models to identify parts^ of the plant.
  - Root
  - Stem
  - Leaf
  - Flower

^The crosscutting concept is systems.^
- Ask questions to compare and contrast the needs of plants* and animals*
  - Air +
  - Water +
  - Light +
  - Nutrients +
  - Food =
  - Shelter =

*The crosscutting concept is patterns.*

- Design a solution to be sure that a plant or animal^ has all its needs met.

^The crosscutting concept is systems.^
Second grade

S2L1 Teacher Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

☐ Ask questions to discover the order of the life cycle* of common animals in your area.
  ☐ Use animals in your neighborhood or classroom such as dog, cat, other pets, chicken, frog or butterfly.
☐ Plan and carry out an investigation into the life cycle* of a plant.
  ☐ record changes that you notice from seed to plant.
☐ Construct an explanation that describes how animals spread seeds or pollen* of plants.
☐ Develop a model to show the life cycles* of organisms other than humans.

*Systems or system models is the crosscutting concept.*
Second grade

S2L1 Teacher Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

☐ Ask questions to discover the order of the life cycle* of common animals in your area.
  ☐ Use animals in your neighborhood or classroom such as dog, cat, other pets, chicken, frog or butterfly.

☐ Plan and carry out an investigation into the life cycle* of a plant.
  ☐ record changes that you notice from seed to plant.
Construct an explanation that describes how animals spread seeds or pollen* of plants.

Develop a model to show the life cycles* of organisms other than humans.

*Systems or system models is the crosscutting concept.*
Third Grade

S3L1 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

Geographic Regions

- Ask questions to identify differences and patterns in plants, animals and habitats in Georgia’s different regions.
  - Blue Ridge Mountains
  - Piedmont
  - Coastal Plains
  - Valley and Ridge
  - Appalachian Plateau

- Construct an explanation of how external structures and adaptations help an animal survive in their habitat.

- Construct an explanation of the cause of organisms thriving in one habitat but not in another habitat.
Fourth grade

S4L1 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

- Develop a model that describes the jobs of organisms in the community:
  - Producers
  - Consumers
  - Decomposers

^The crosscutting concept is systems.^

- Develop a model to show the flow of energy in a food web or food chain.
  - Include the sun, producers, consumers and decomposers.
- *Design a scenario that shows what happens to an ecosystem after a change.
  - Be sure to include living and non-living things in your scenario.

  *This is part of constructing an explanation.*

- Use data to develop a model to show and describe how the flow of energy changes when plants or animals become scarce, extinct or over-abundant.
Fifth Grade

S5L3 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

Cells

☐ Gather evidence using technology to support a claim that plant and animal cells are too small scale to see with your naked eye.

☐ Develop a model to identify and label the parts of the system that make up the plant cell.
  ☐ Cell membrane
  ☐ Cell wall
  ☐ Cytoplasm
  ☐ Nucleus
  ☐ Chloroplast

☐ Develop a model to identify and label the parts of the system that make up an animal cell.
  ☐ Cell membrane
  ☐ Cytoplasm
  ☐ Nucleus

☐ Construct an explanation the describes the difference between the structure of plant and animal cells.

Return to top
Sixth Grade

S6E2 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

☐ Develop and use a model showing the phases of the moon using the relative positions of the sun, Earth and moon.*

*The crosscutting concept is patterns.*

☐ Construct an explaining of the cause of eclipses.
  ☐ Solar eclipses
  ☐ Lunar eclipses

☐ Analyze and interpret data to show how the tilt of the earth and distribution of sunlight relate throughout the year and effect the seasons. ^

^The crosscutting concept is cause and effect.^
Seventh Grade

S7L2 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic, then you may check it off and record the date. On the back, record evidence of your mastery. Evidence could include grades, explanations or description of project/assignments that support your mastery.

Cells

☐ Develop a model that shows how the following organelles work together to obtain nutrients in order to grow, reproduce, make needed nutrients and process waste for the cell as part of a living system. (Date: __________)
  ☐ Nucleus (Date: __________)
  ☐ Cytoplasm (Date: __________)
  ☐ Cell Membrane (Date: __________)
  ☐ Cell Wall (Date: __________)
  ☐ Chloroplast (Date: __________)
  ☐ Mitochondria (Date: __________)
  ☐ Lysosome (Date: __________)

☐ Explain how the following organelles work together to obtain nutrients in order to grow, reproduce, make needed nutrients and process waste for the cell as part of a living system. (Date: __________)
  ☐ Nucleus (Date: __________)
  ☐ Cytoplasm (Date: __________)
  ☐ Cell Membrane (Date: __________)
  ☐ Cell Wall (Date: __________)
  ☐ Chloroplast (Date: __________)
  ☐ Mitochondria (Date: __________)
  ☐ Lysosome (Date: __________)
- Develop and use models to show how cells are organized into tissues, tissues into organs, organs into organ systems and systems into organisms.

- Construct an argument and support it using evidence that systems of the body work together to carry out life processes.
  - Cardiovascular
  - Excretory
  - Digestive
  - Respiratory
  - Muscular
  - Nervous
  - Immune

*Focus on how the systems work together to keep organisms alive. *
Eighth grade

S8P5 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more than 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

Major Forces Acting in Nature

☐ Construct an argument supported by evidence to support the claim that a system of fields exists and exert forces on one another even when objects are not touching.
  ☐ Magnetic fields
  ☐ Gravitational fields
  ☐ Electric fields

☐ Plan and carry out investigations to visualize the structure of charges in conductors and insulators.
  ☐ Conduction
  ☐ Induction
  ☐ Friction

☐ Plan and carry out investigations to identify factors that cause the strength of electric and magnetic forces to be affected.

Return to top

Georgia Department of Education
February 2020
Biology
SB1 Option 1

SB1 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more that 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

Cells

☐ Explain how structures with the cell, such as organelles, function together to maintain homeostasis for the cell as part of a system and provide evidence to back up your explanation. (Date: ________)  
    ☐ Protein synthesis: Explain how the Nucleus, Ribosomes, Golgi body and Endoplasmic Reticulum function to assist the cell in maintaining homeostasis. (Date: ________)  
    ☐ Control what enters and exits the cell: Explain how the cytoplasm, cell membrane and cell wall work together to assist the cell in maintaining homeostasis. (Date: ________)  
    ☐ Storage and use of matter: Explain how the vacuoles and lysosomes work together to assist the cell in maintaining homeostasis. (Date: ________)  
    ☐ Energy and matter: explain how the chloroplast and mitochondria work together to make and move energy and matter with the cell to assist the cell in maintaining homeostasis. (Date: ________)
☐ **Develop and use models** to explain how cells reproduce and maintain genetic **stability** of an organism (Date: ________)
  - Use a model to explain the characteristics, processes and outcomes of mitosis that assist a cell in maintaining the genetic stability of an organism. (Date: ________)
  - Use a model to explain the characteristics, processes and outcome of meiosis that assist a cell in maintaining the genetic stability of an organism. (Date: ________)
  - Use a model to explain the characteristics, processes and outcome of Binary fission that assist a cell in maintaining the genetic stability of an organism. (Date: ________)

☐ **Construct an argument** and support it using evidence that shows how the **structure** of macromolecules helps them **function** to carry out cellular processes (Date ________)
  - **Cell membrane:** construct an argument that is supported by evidence about the structures and functions of carbohydrates, proteins and lipids in the cell membrane and how the structure of each macromolecule helps the cell membrane perform its job of assisting the cell in maintaining homeostasis. (Date: ________)
  - **Energy:** construct an argument that is supported by evidence about the structure and function of carbohydrates, proteins and lipids in providing energy for the cell. (Date: ________)
  - **Carrying out cellular processes:** construct an argument that is supported by evidence about the structure and function of enzymes and nucleic acids to direct and carry out processes within the cell. (Date: ________)
Plan and carry out investigations to see how cellular transport helps the cell’s system maintain homeostasis.

- Plan and carry out an investigation and explain what would cause the cell to use active transport and what the effect of active transport is for the cell. (Date: __________)
- Plan and carry out an investigation and explain what would cause the cell to use passive transport and what the effect of passive transport is for the cell. (Date: __________)
- Plan and carry out an investigation and explain what would cause the cell to use osmosis and what the effect of osmosis is for the cell. (Date: __________)

Ask questions and explain, with evidence, how matter and energy move within the cell (Date: __________)

- Explain how photosynthesis and cellular respirations assist the cell in converting energy into a form that is usable by the cell. (Date: __________)
- Explain how photosynthesis and cellular respiration helps the cell move matter within the organism. (Date: __________)
SB1 Option 2
Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more that 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

Cells

☐ Explain relationships between the structure and function of cells. (Date: __________)

☐ Explain how the following organelles work together to maintain homeostasis for the cell as part of a living system. (Date: __________)
  ☐ Nucleus (Date: __________)
  ☐ Cytoplasm (Date: __________)
  ☐ Cell Membrane (Date: __________)
  ☐ Cell Wall (Date: __________)
  ☐ Chloroplast (Date: __________)
  ☐ Mitochondria (Date: __________)
  ☐ Lysosome (Date: __________)
  ☐ Golgi Body (Date: __________)
  ☐ Endoplasmic Reticulum (Date: __________)
  ☐ Vacuoles (Date: __________)
  ☐ Ribosomes (Date: __________)

☐ Develop and use models to explain how cells reproduce and maintain the genetic stability of an organism. (Date: __________)
  ☐ Mitosis (Date: __________)
  ☐ Meiosis (Date: __________)
  ☐ Binary Fission (Date: __________)

Georgia Department of Education
February 2020
Construct an argument and support it using evidence that shows how the structure of macromolecules helps them function to carry out cellular processes. (Date ______)

- Carbohydrates (Date: ______)
- Proteins (Date: ______)
  - Enzymes (Date: ______)
- Lipids (Date: ______)
- Nucleic Acids (Date: ______)

Plan and carry out investigations to see how cellular transport helps the cell’s system maintain homeostasis. Also, what is the cause and effect for the cell moving materials?

- Active Transport (Date: ______)
- Passive Transport (Date: ______)
- Osmosis (Date: ______)

Ask questions and explain how matter and energy move within the cell. (Date: ______)

- Photosynthesis (Date: ______)
  - Light reaction (Date: ______)
  - Calvin Cycle (Date: ______)
- Cellular Respiration (Date: ______)
  - Glycolysis (Date: ______)
  - Krebs Cycle (Date: ______)
  - Electron Transport Chain (Date: ______)
Chemistry

SC3 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more that 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

☐ Use mathematics and computational thinking to balance chemical reactions*.
  ☐ Synthesis
  ☐ Decomposition
  ☐ Single replacement
  ☐ Double replacement
  ☐ Combustion

*The crosscutting concept is scale, proportion, and quantity. *

☐ Construct an explanation for the outcome of a simple chemical reaction based on the following factors^:
  ☐ Outermost electron states of atoms
  ☐ Trends in the periodic table
  ☐ Knowledge of the patterns of chemical properties

^Systems and system models is the crosscutting concept^
☐ Plan and carry out an investigation to determine that a new chemical has been formed by identifying indicators of a chemical reaction^.
  ☐ Precipitate formation
  ☐ Gas evolution
  ☐ Color change
  ☐ Water production
  ☐ Changes in energy to the system

^Systems and system models is the crosscutting concept^
Use mathematics and computational thinking to identify and solve different types of reaction stoichiometry problems using significant figures*.

- Mass to moles
- Mass to mass
- Moles to moles
- Percent yield

*The crosscutting concept is scale, proportion, and quantity.*

Plan and carry out an investigation to demonstrate the conceptual principle of limiting reactants^.

^Systems and system models is the crosscutting concept^
Physical Science

SPS1 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more than 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

Element Properties

☐ Use the periodic table to explain properties of chemicals based on patterns of atomic structure (date: ________)

☐ Develop models to show the structure of atoms, ions and isotopes (date: ________)
  ☐ Compare and contrast the structure in the models of atoms, ions and isotopes (date: ________)

☐ The most important structural properties to identify in the models are the following:
  ☐ Atomic number (date: ________)
  ☐ Atomic mass (date: ________)
  ☐ Location and charge of protons, neutrons and electrons (date: ________)

Georgia Department of Education
February 2020
☐ Analyze and interpret data to find patterns in the periodic table. The most important trends are listed below (date: ________)
  ☐ The number of valence electrons (date: ________)
  ☐ The types of ions that are formed by main groups (date: ________)
  ☐ the location of metals, non-metals and metalloids (date: ________)
  ☐ the properties that define metals, non-metals and metalloids (date: ________)
  ☐ The phases at room temperature (date: ________)

☐ Use the periodic table, which is a model, to predict properties of other elements bases on the patterns you identified and studied. (date: ___________)

Georgia Department of Education
February 2020
Earth Systems

SES6 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more that 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

☐ Construct an argument using evidence that describes how life has responded to major events in earth history through extinction, migration and/or adaptation*.
  ☐ Major climate change
  ☐ Tectonic events

☐ Construct an explanation that describes how biological processes have caused major changes in earth’s systems through geologic time.
  ☐ Nutrient cycling
  ☐ Atmospheric composition
  ☐ Soil formation

☐ Ask questions to investigate and communicate how humans depend on Earth’s land and water resources, which are distributed unevenly around the planet as a result of past geological and environmental processes*.

☐ Analyze and interpret data that relates changes in global climate to natural modifications and human impact on the earth’s atmosphere and oceans*.

*Systems in the crosscutting concept*
Environmental Science

SEV4 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more that 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

- **Construct a claim** based on evidence of the effects of human activities on land, water, air, and other organisms. The human activities to focus on are the following:
  - Agriculture
  - Forestry
  - Ranching
  - Mining
  - Urbanization
  - Fishing
  - Water use
  - Pollution
  - Desalination
  - Wastewater treatment

- **Design a solution** to reduce human impact on the environment.
  - Smog
  - Ozone depletion
  - Urbanization
  - Ocean acidification
  - Other human impacts
Construct an argument to show how human population growth effects food demand and food supply.
- GMOs
- Monocultures
- Desertification
- Green Revolution

*The crosscutting concept is cause and effect.*
Physics

SP6 Self-Evaluation and Reflection Tool

Directions: Consider what we have learned and where you are at the end of class every day. If you feel that you have mastered the topic then you may check it off and record the date. On the back, record evidence of your mastery such as an assignment that you completed without more that 25% being incorrect or creating an accurate model in class that you shared with others or other evidence that you feel is relevant to show mastery.

☐ Develop and use mathematical models to explain, compare and contrast nuclear processes*.
  ☐ Radioactive decay
  ☐ Fission
  ☐ Fusion

☐ Construct an argument to compare and contrast mechanisms and characteristics of radioactive decay and their effects*.
  ☐ Alpha decay
  ☐ Beta decay
  ☐ Gamma decay

☐ Develop and use mathematical models and representation to calculate the amount of substance present after a given amount of time based on its half-life and relate this to the law of conservation of mass and energy.

*The crosscutting concept is patterns.*