# Science Curriculum Analysis—Grade 8

To meet the goals of *Each Child, Our Future*, Ohio’s strategic plan for education, schools and districts will find it essential to have appropriate local curricula supported by high-quality instructional materials. Science is part of providing well-rounded content for students, as *well-rounded content* is one of the four learning domains listed in the strategic plan.

Science is an essential subject for students in grades K-12. It is important to build a strong foundation in science in early elementary years so students are prepared for understanding more complex material in intermediate and middle grades. It is equally important to continue students’ science instruction by offering more advanced courses at the high school level. This allows students to better compete for admission to college or other postsecondary programs, as well as jobs. Advanced science courses in high schools also help produce a more scientifically literate public.

Schools and districts can use this curriculum analysis to evaluate local science curricula and instructional materials. When using this document, be sure to study thoroughly each *Content Statement* and the elaborations that go with it. All the material contained in the elaborations is essential content. When reviewing local materials, ensure students are meeting the *Expectations for Learning*. *Expectations for Learning* include the *Nature of Science* and *Cognitive Demands*. The *Nature of Science* portion for each grade is located at the beginning of the grade level or course. Find the entire K-12 *Nature of Science* spectrum on pages 8-12 of *Ohio Learning Standards and Model Curriculum for Science*. The *Cognitive Demands* are described on page 13 of that document. Find examples of activities in the *Visions into Practice* section for each course or grade level.

The curriculum analysis begins with an instruction chart that shows the intended use for each column. At the K-8 levels, this chart also identifies the *Grade Band Theme*, an overall theme that carries through several grade levels, and the *Strand Connections*, which show how Earth and space science, physical science, and life science content interrelate. Each table has fillable fields that expand as needed. The charts are for notetaking in whatever manner the user finds best. Users also can make local versions of these documents that contain additional fields or are broken into smaller increments to allow fuller evaluation of instruction related to each standard.

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps** |
| --- | --- | --- | --- | --- | --- |
| **Instructions: To complete the curriculum analysis it is important to consider the content statements, the content elaboration, the *Nature of Science\** and the *Cognitive* *Demands.\*\**** | | | | | |
| List content standard here. | Carefully review the expectations of the standard and elaboration. List the curriculum materials currently used to address each portion of the content.  List specific projects, resources, investigations, etc., currently used to address each portion of the content. | **Fully incorporated**  **Partially incorporated**  **Not incorporated**  **Notes:**  Identify how each area of the *Nature of Science* is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating science knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Identify areas of the content elaboration where there are gaps in the instructional materials currently used.  Identify ways in which the *Nature of Science* can be more closely integrated with this content.  Identify *Cognitive Demands* where students need additional practice. | Identify instructional strategies and resources that can be used to bridge identified gaps. |
| **Grade Band Theme: Order and Organization**  *This theme focuses on helping students use scientific inquiry to discover patterns, trends, structures and relationships that may be inferred by simple principles. These principles are related to the properties or interactions within and between systems.* | | | | | |
| ***Strand Connections:*** [***Strand Connections:***](#connections) *Systems can be described and understood by analysis of the interaction of their components. Energy, forces and motion combine to change the physical features of the Earth. The changes of the physical Earth and the species that have lived on Earth are found in the rock record. For species to continue, reproduction must be successful.* | | | | | |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Earth and Space Science (ESS)** | | | | | |
| **8.ESS.1** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Earth and Space Science (ESS)** | | | | | |
| **8.ESS.2** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Earth and Space Science (ESS)** | | | | | |
| **8.ESS.3** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Earth and Space Science (ESS)** | | | | | |
| **8.ESS.4** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Physical Science (PS)** | | | | | |
| **8.PS.1** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Physical Science (PS)** | | | | | |
| **8.PS.2** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Life Science (LS)** | | | | | |
| **8.LS.1** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Life Science (LS)** | | | | | |
| **8.LS.2** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |

| **Content Standard** | **Current curriculum and instructional resources used to address this content** | **Extent that the *Nature of Science*\* is incorporated into current curriculum and instructional resources** | **Cognitive Demands met by current instructional strategies\*\*** | **Content or skills not fully addressed in current instruction** | **Identify resources to address content gaps.** |
| --- | --- | --- | --- | --- | --- |
| **Life Science (LS)** | | | | | |
| **8.LS.3** | Click or tap here to enter text. | **Fully**  **Partially**  **Not**  **Notes:**  Identify how each area of the Nature of Science is incorporated into this content. | **T** (Designing technological/engineering solutions)  **D** (Demonstrating Science Knowledge)  **C** (Interpreting and communicating science concepts)  **R** (Recalling accurate science) | Click or tap here to enter text. | Click or tap here to enter text. |