**Transcript Review Worksheet**

**5440- 13 Science**

The holder is authorized to teach science in grades 7-12.

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Educator ID#\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Add Endorsement  Course Audit**

Please note that the transcript review worksheets indicate only the endorsement competencies that must be met. There may be additional jurisdictional requirements.

For a full list of requirements, please consult the [Rules Governing the Licensing of Educators](https://education.vermont.gov/documents/educator-quality-licensing-rules).

| **Content**  **Topic** | **College/**  **University** | **Course**  **Name/Number** |
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| 1.1. Learning Environments  Effective science educators are able to plan for engaging all students in science learning by setting appropriate goals that are consistent with knowledge of how students learn science and are aligned with Vermont state science standards. Instructional plans reflect the nature of science and three-dimensional learning that integrates Disciplinary Core Ideas, Science and Science and Engineering Practices, and Crosscutting Concepts. Instructional plans reflect the nature and social context of science, and inquiry. Educators design and select learning activities, instructional settings, and resources--including science-specific technology--to achieve those goals. |  |  |
| 1.1.1. Educators use a variety of instructional strategies that demonstrate knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology--to allow all students to learn. These strategies are inclusive and motivating for all students. |  |  |
| 1.1.2. Educators create a knowledge-building culture that encourages intellectual risk-taking and provides a safe environment for students to propose solutions and explore the accuracy of their explanations. |  |  |
| 1.1.3. Educators develop learning opportunities where students construct explanations for observed phenomena and find evidence to support these explanations or design solutions to engineering problems. |  |  |
| 1.1.4. Educators provide students with equitable opportunities to develop their scientific understandings of the Vermont state science standards. |  |  |
| 1.2. Physical Safety  Effective science educators can demonstrate and maintain safety procedures, chemical safety, and the ethical treatment of living organisms. |  |  |
| 1.2.1. Design activities that demonstrate the safe and proper techniques for the preparation, storage, dispensing, supervision, and disposal of all instructional materials. |  |  |
| 1.2.2. Design and demonstrate activities that show an ability to implement emergency procedures and the maintenance of safety equipment, policies, and procedures that comply with established state and/or national guidelines. Educators ensure safe activities appropriate for the abilities of all students. |  |  |
| 1.2.3. Design and demonstrate activities that show ethical decision-making with respect to the treatment of all living organisms in and out of the classroom. They emphasize safe, humane, and ethical treatment of animals and comply with the legal restrictions on the collection, keeping, and use of living organisms |  |  |
| 2.1. Content Knowledge and Skills  Educators demonstrate understanding of the major concepts, principles, theories, laws, and interrelationships of the major fields of science and the supporting roles of science-specific technology. |  |  |
| 2.1.1. Physical Science   * 2.1.1.1. Matter and Its Interactions * 2.1.1.2. Motion and Stability: Forces and Interactions * 2.1.1.3. Energy and Waves |  |  |
| 2.1.2. Life Science   * 2.1.2.1. From Molecules to Organisms: Structures and Processes * 2.1.2.2. Ecosystems: Interactions, Energy, and Dynamics * 2.1.2.3. Heredity: Inheritance and Variation of Traits * 2.1.2.4. Biological Evolution: Unity and Diversity |  |  |
| 2.1.3. Earth & Space Sciences   * 2.1.3.1. Earth’s Place in the Universe * 2.1.3.2. Earth’s Systems * 2.1.3.3. Earth and Human Activity |  |  |
| 2.1.4. Engineering Design Process (N.B., This does not refer to engineering content, but an understanding of how to integrate engineering design processes across science disciplines.) |  |  |
| 3.1. Pedagogical Content Knowledge and Instructional Practice  Effective science educators understand how students learn and develop scientific knowledge. They strive to develop students’ deep understanding of core scientific principles rather than a cursory understanding of discrete facts. Educators integrate Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts to develop this knowledge for all students. |  |  |
| 3.1.1. Educators provide opportunities for students to engage in scientific thinking that involves collecting and interpreting data to evaluate their understandings and develop scientific explanations. Applications of science-specific technology are included in the lessons where appropriate. |  |  |
| 3.1.2. Educators create opportunities for students to collaboratively design and implement scientific investigations, present and discuss the results of their investigations, construct explanations, and solve engineering problems. |  |  |
| 3.1.3. Educators design instruction and assessment strategies that elicit misconceptions and cause students to confront and question their emergent scientific ideas. Educators leverage student misconceptions to personalize future instruction. |  |  |
| 3.2. Three-dimensional Learning |  |  |
| 3.2.1. Instruction addresses Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts concurrently around an identified scientific idea or engineering problem. |  |  |
| 3.2.2. Educators design learning opportunities where students explore a Disciplinary Core Idea through Science and Engineering Principles and make connections to the Crosscutting Concepts. |  |  |
| 3.3. Assessment  Effective science educators: |  |  |
| 3.3.1. Plan fair and equitable assessment strategies that integrate three-dimensional learning to analyze student learning and evaluate how the learning goals are met. |  |  |
| 3.3.2. Design formative, interim, and summative assessment strategies to continuously evaluate preconceptions and ideas that students hold and how these ideas evolve. |  |  |
| 3.3.3. Scaffold student learning to distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science. |  |  |
| A major in biology, chemistry, physics, or earth/environmental/atmospheric sciences, or the equivalent in undergraduate and/or graduate coursework. **(The equivalent of a major is defined as at least 30 credits, at least nine (9) of which shall be advanced undergraduate courses or higher. Please attach the degree equivalency worksheet if needed).**  For the full endorsement, a candidate must have at least one course that addresses each content knowledge area; a single class could potentially address multiple areas. |  |  |
| A minimum of a practicum, or the equivalent, at the middle/secondary level (7-12) in an endorsement requiring competency with the Core Teaching Standards. |  |  |
| **Required Testing: Praxis II Subject Assessment: General Science - Test Code 5435**  **Biology - Test Code 5235**  **Chemistry - Test Code 5245**  **Physics - Test Code 5265**  **Earth Science - Test Code 5571**  **Candidates must achieve a passing score on the General Science test AND one Science subject specific test.** |  |  |