

Handout 5A.3. About Mrs. Wilson

The following provides information about Mrs. Wilson:

- Mrs. Wilson teaches seventh- and eighth-grade science. She teaches five sections of seventh-grade general science and one section of honors eighth-grade science.
- She is the only seventh-grade general science teacher in her building.
- Mrs. Wilson is creating an SLO for her seventh-grade students.
- In the past, she has administered a preassessment and a postassessment aligned to the New Learning Standards that were created by a district science team. This assessment was recently revised to make it also align with the New State Standards for Grades 6–8: Literacy in Science and Technical Subjects.
- The school’s improvement plan includes targets related to improved student performance in reading and improved performance of special education students in mathematics and reading. The school and district also are focusing on improving teacher use of assessments by using formative assessments to assess student progress and by developing and using assessments that capture the full cognitive demand of the course.

The following provides information about Mrs. Wilson’s seventh-grade students:

- Mrs. Wilson instructs 128 seventh-grade students divided in five sections.
- Seventh-grade science is a yearlong course, and each class meets daily.
- Two students are English language learners.
- None of Mrs. Wilson’s students have been identified as gifted and talented. Students who have been identified as gifted and talented take a separate honors course.
- Nine students have individualized education programs (IEPs) or 504 plans. She received a summary snapshot from the special educator, which provides additional detail on these students (see Handout 5A.4).

Handout 5A.4. Student Snapshot

This information should not be submitted with the SLO due to the sensitive nature of the information. However, this information is included to help the module participant understand how to appropriately use contextual information to define the student population.

To: Mrs. Mary Wilson

From: Christine Hemmer, Special Educator

IEP and 504 Plan Summary Snapshot

Student Name	IEP Disability Code/504 Plan	Goal Areas	Other Services	Accommodations/ Modifications	Testing Accommodations	Medical/ Health Concerns
Shirley Minner	2—Hearing impairment	Behavioral, reading, and writing	Speech-language and reading intervention	Preferential seating, visual cues, and teacher use of microphone	Reader/written copy of all oral directions	None
Arlee Jacobson	4—Speech/language	Behavioral and writing	Speech-language	None	None	None
Brenda Erikson	5—Visual impairment	Behavioral and reading	Reading intervention	Preferential seating, use of assistive technology, fewer items per page, and magnification	Oral reading of directions as needed, magnification, and fewer items per page	None
Jada Anderson	8—Other health impairment	Writing and mathematics	Reading intervention	Modified workload, graphic organizers, and preferential seating	Extended time	Medication and seizures
Raina Fielder	9—Specific learning disability	Reading	None	Chunking	Extended time	None
Chris Cooper	14—Autism	Reading, writing, mathematics, organization, and behavioral	Occupational therapy, speech-language, reading intervention, and mathematics intervention	Written daily schedule, preferential seating, frequent breaks, use of assistive technology (computer), use of stress ball, and extended time	Extended time and frequent breaks	Medication
Mike O'Malley	504 plan—ADHD		None	Preferential seating	Extended time and minimized distractions	None
Taylor Smith	504 plan—ADHD		None	Frequent breaks and use of stress ball	Extended time	None
George Smith	504 plan—ADHD		None	Frequent breaks and chunking	Extended time	None

Note. ADHD = attention deficit hyperactivity disorder.

Handout 5A.5. Student Data on Current Students

Students' Overall Results of Seventh-Grade Preassessment for 2012–13 Students

This version of the assessment has not been administered previously. The district recently revised the previous assessment to make it better align with the New State Standards for Grades 6-8: Literacy in Science and Technical Subjects. However, Mrs. Wilson asserts that the current version is not dramatically different from the previous version.

Teacher: Mrs. Wilson

Score Range	Number of Students Scoring in That Range
0–20	15
21–30	34
31–40	45
41–50	29
51–60	5

Unit/Skill Area	Mean Area Score	Range of Scores
Cycles of Patterns of Earth and Moon	9 (out of 15)	1–12
Conservation of Mass and Energy	7 (out of 15)	2–10
Cycles of Matter and Flow of Energy	7 (out of 15)	2–10
Scientific Inquiry	7 (out of 20)	1–15
Data Analysis	9 (out of 20)	3–14
Analyzing and Communicating Predictions	7 (out of 15)	2–10

Handout 5A.6. Student Data on Past Students

Results of Seventh-Grade Postassessment by Content Area for 2010–11 and 2011–12 Students ($n = 305$)

For the past two years, Mrs. Wilson has administered a postassessment worth 100 points. The distribution of points by topic area is listed here.

Unit/Skill Area	Mean Score ($n = 305$)	Range of Scores ($n = 305$)
Cycles of Patterns of Earth and Moon	12 (out of 15)	7–19
Conservation of Mass and Energy	10 (out of 15)	6–19
Cycles of Matter and Flow of Energy	10 (out of 15)	5–19
Scientific Inquiry	11 (out of 20)	5–15
Data Analysis	13 (out of 20)	4–17
Analyzing and Communicating Predictions	11 (out of 15)	9–13

Results of Seventh-Grade Preassessment and Postassessment for 2010–11 and 2011–12 Students ($n = 305$)

The results of the pre- and postassessment data for Mrs. Wilson's past students are described here.

Baseline Score Range on Seventh-Grade Team-Created Preassessment	Number of Students Scoring in That Range	Range of Scores on Postassessment of Students Scoring in That Baseline Score Range	Mean Amount of Growth Between the Preassessment and Postassessment
0–20	30	30–74	45 points
21–30	75	50–76	38 points
31–40	75	67–85	37 points
41–50	69	70–90	36 points
51–60	51	85–98	38 points
61–70	5	93–99	33 points

Handout 5A.7. School Data on the Grade 8 Science Achievement Assessment, 2011–12

Performance Level	Percentage of Students Scoring at That Level
Advanced —Students apply science knowledge and concepts. They design, conduct, and evaluate appropriate investigations to answer their own science questions.	5%
Accelerated —Students know and connect science ideas and concepts. They can choose appropriate methods to investigate a science question and explain the results.	10%
Proficient —Students know science facts but may have difficulty connecting ideas and concepts. They can design and conduct a basic science experiment.	65%
Basic —Students know limited scientific concepts but cannot communicate or apply them on a regular basis. They make conclusions and guess what will happen next based on naive concepts.	13%
Limited —Students know a few science facts. They can follow a given procedure to conduct a basic science experiment.	7%

Handout 5A.8. ELA State Standards for Grades 6–8: Literacy in Science and Technical Subjects¹

Key Ideas and Details

- “[ELA-Literacy.RST.6-8.1](#) Cite specific textual evidence to support analysis of science and technical texts.”
- “[ELA-Literacy.RST.6-8.2](#) Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.”
- “[ELA-Literacy.RST.6-8.3](#) Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.”

Craft and Structure

- “[ELA-Literacy.RST.6-8.4](#) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6–8 texts and topics*.”
- “[ELA-Literacy.RST.6-8.5](#) Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.”
- “[ELA-Literacy.RST.6-8.6](#) Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.”

Integration of Knowledge and Ideas

- “[ELA-Literacy.RST.6-8.7](#) Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).”
- “[ELA-Literacy.RST.6-8.8](#) Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.”
- “[ELA-Literacy.RST.6-8.9](#) Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.”

Range of Reading and Level of Text Complexity

- “[ELA-Literacy.RST.6-8.10](#) By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.”

Handout 5A.9. Excerpt From Revised Science Standards and Model Curriculum, Grade 7²

Themes	The Physical Setting		The Living Environment	Science Inquiry and Applications	
	Earth and Space Science	Physical Science	Life Science		
Interconnections within Systems <i>This theme focuses on helping students explore the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.</i>	5	Cycles on Earth, such as those occurring in ecosystems, in the solar system and in the movement of light and sound, result in describable patterns. Speed is a measurement of movement. Change in speed is related to force and mass*. The transfer of energy drives changes in systems, including ecosystems and physical systems.		During the years of grades 5 through 8, all students must have developed the ability to: <ul style="list-style-type: none"> Identify questions that can be answered through scientific investigations; Design and conduct a scientific investigation; Use appropriate mathematics, tools and techniques to gather data and information; Analyze and interpret data; Develop descriptions, models, explanations and predictions; Think critically and logically to connect evidence and explanations; Recognize and analyze alternative explanations and predictions; and Communicate scientific procedures and explanations. 	
		Cycles and Patterns in the Solar System	Light, Sound and Motion		Interactions within Ecosystems
Order and Organization <i>This theme focuses on helping students use scientific inquiry to discover patterns, trends, structures and relationships that may be inferred from simple principles. These principles are related to the properties or interactions within and between systems.</i>	6	All matter is made of small particles called atoms. The properties of matter are based on the order and organization of atoms and molecules. Cells, minerals, rocks and soil are all examples of matter.			
		Rocks, Minerals and Soil	Matter and Motion		Cellular to Multicellular
	7	Systems can exchange energy and/or matter when interactions occur within systems and between systems. Systems cycle matter and energy in observable and predictable patterns.			
		Cycles and Patterns of Earth and the Moon	Conservation of Mass and Energy		Cycles of Matter and Flow of Energy
	8	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.			
	Physical Earth	Forces and Motion	Species and Reproduction		

*While mass is the scientifically correct term to use in this context, the [NAEP 2009 Science Framework](#) (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Handout 5A.10. List of Assessments Available to Mrs. Wilson

Assessment: Course Preassessment

Content: Seventh-grade content and skills aligned with the State Standards and New Learning Standards

Created by: District middle school science team

Reviewed by: District science coordinator and school assessment coordinator

Length: 1 hour

Format: 20 multiple-choice questions, 5 short-answer questions, and 1 performance task

Assessment: Unit Test 1

Content: Cycles and Patterns of Earth and the Moon

Created by: Middle school science team

Reviewed by: District science coordinator and school assessment coordinator

Length: 1 course period

Format: 25 multiple-choice questions and 2 short-answer questions

Assessment: Unit Test 2

Content: Conservation of Mass and Energy

Created by: Middle school science team

Reviewed by: District science coordinator and school assessment coordinator

Length: 1 course period

Format: 25 multiple-choice questions and 2 short-answer questions

Assessment: Unit Test 3

Content: Cycles of Matter and Flow of Energy

Created by: Middle school science team

Reviewed by: District science coordinator and school assessment coordinator

Length: 1 course period

Format: 25 multiple-choice questions and 2 short-answer questions

Assessment: Laboratory Exams (science inquiry, data analysis, predictions)

Skills: Science inquiry, data analysis, predictions

Created by: Mrs. Wilson

Reviewed by: None

Length: 1 course period each

Format: Extended performance task

Assessment: Course Postassessment

Content: Seventh-grade content and skills aligned with New State Standards and New Learning Standards

Created by: District middle school science team

Reviewed by: District science coordinator and school assessment coordinator

Length: 2 hours

Format: 40 multiple-choice questions, 10 short-answer questions, and 2 performance tasks