

How to read a GTCC Science Standard Document

Next Generation Science Standard (NGSS) that correlates to MT Science Standard– MT’s science standards were based very closely on [NGSS standards](#) (or expectations of student performance), which means there is much more information and resources available to you if you know how to read and use the NGSS (e.g. the clarification statement and assessment boundary below which also apply to MT standards)

Coding from NGSS (MT standards aren’t coded)

Vocabulary associated with this standard

Montana Science Standard – exactly the same as [what is provided through OPI](#)

Performance Expectations		Three Dimensions of Learning <small>Crosscutting Concepts-CCC, Disciplinary Core Ideas-DCI, Science and Engineering Practices-SEP</small>		Vocabulary	Resources
MT Performance Expectation: EARTH AND SPACE SCIENCE content standards for fifth grade are that each student will: graph the daily changes in the length, shape, and direction of shadows; lengths of day and night; and the seasonal appearance of select stars to communicate the patterns of the Earth’s movement and describe how astronomical knowledge is used by American Indians	NGSS Performance Expectation: 5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	CCC Patterns Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena.	ESS1.B: Earth and the Solar System <ul style="list-style-type: none"> The orbits of Earth around the sun and the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night, daily changes in the length and direction of shadows, and different positions of the sun, moon, and stars at different times of the day, month, and year. 	Daily changes (length and direction of shadow, day and night), Earth’s: <ul style="list-style-type: none"> Orbit Axis Rotation Sun patterns	Picture-Perfect STEM Ch 18 “Space Exploration” OPI Montana Skies
	NGSS Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.	DCI			Picture-Perfect STEM Ch 19 “Star Stuff” following the sun
	NGSS Assessment Boundary: Assessment does not include causes of seasons.	SEP Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. <ul style="list-style-type: none"> Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. 			Graphing with the solar system

Resources for teaching this standard, but also specifically each dimension of the standard

- May be links to online resources or references to other types of resources

Correlated previous GTCC curricular benchmark (if correlation exists) – the new standards have been mapped to the old GTCC curriculum

Three Dimensions - NGSS, and therefore MT standards are comprised of three dimensions:

- [Science and Engineering Practices \(SEPs\)](#) – skills or practices
- [Disciplinary Core Ideas \(DCIs\)](#) – content, which spirals and builds from lower to upper grades
- [Crosscutting Concepts \(CCCs\)](#) – big, overarching ideas that are used throughout science and engineering

*Different groups worked on different grade levels (K-5) and content areas 6-8 and 9-12, so there may be slight variation in formatting used by those groups.