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| **DRAFT** |
| **Stage 1 – Desired Results** |
| **Established Goals:** *Students will be able to independently use their learning to…** Describe and interpret how Earth's geologic history and place in space are relevant to our understanding of the processes that have shaped our planet
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| **Understandings:***Students will understand that…** Various technological methods and equipment such as telescopes are used to investigate far-away objects in the solar system and beyond.
* By representing galaxies and solar systems, planetariums allow people to simulate the experience of outer space.
* Understand that scientists work from the assumption that the universe is a single system in which the basic rules are the same everywhere - that planets follow the same rules about forces as other objects. (DOK 1)
* Recognize that our current understanding of the solar system has developed over centuries of studies by many scientists, and that through continued scientific investigations and advances in data collection, we will continue to refine our understanding of the solar system. (DOK 1)
 | **Essential Questions:*** How are the various bodies in the solar system similar and different?
* How does investigating characteristics of the various bodies in the solar system provide clues to Earth's origin and evolution?
* Why do objects such as satellites, Moons and planets stay in orbit?
* How is the life cycle of a star such as the Sun similar to the cycle of life on Earth?
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| *Students will know…** Key terms:
 | *Students will be able to…** Construct a scale model of the solar system, and use it to explain the motion of objects in the system such a planets, Sun, Moons, asteroids, comets, and dwarf planets (DOK 2-3)
* Describe methods and equipment used to explore the solar system and beyond (DOK 1)
* Design an investigation that involves direct observation of objects in the sky, and analyze and explain results (DOK 2-4)
* Research, critique, and communicate scientific theories that explain how the solar system was formed (DOK 1-3)
* Use computer data sets and simulations to explore objects in the solar system (DOK 1-2)
* Recognize that mathematical models are used to predict orbital paths and events (DOK 1)
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| Assessments |
| Summative | Formative |
| * Scale model of solar system, peer and self assessed then graded with a rubric and including an explanation of the motion of objects in the system, at least one method used to explore the solar system, and the predicted future of the solar system.
 | * KWL chart in think-pair-share format. Class questions will be grouped in similarity and used as the basis for investigations.
* Create a presentation in students’ choice of formats, working individually or in a chosen group of up to 3, that explains one method used to explore the solar system and beyond. Must include a model and an explanation of the process scientists went through to successfully end up where they did.
* Students will participate in a debate about how the solar system was formed. Students will be assigned roles and research from their given role. A rubric will be used for grading.
* Quizzes will be given periodically to assess student progress.
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