Subject: HMH Into Science

Grade: 8th Grade

CRESTHAVEN ACADEMY CHARTER SCHOOL

Unit 1 - Earth Through Time

Time Frame: 11 Lessons

Essential Questions:

Why might you want to study the geologic history of a certain area? What can you learn?
What tools and resources can you use to learn about the geologic history of an area?
How can you use the concepts of relative dating and absolute dating to learn about the geologic history of an area?
How might you infer what an area was like at a certain time period in Earth's history if no fossils are found in that area?

Description:
In Earth and Space Sciences Unit 4, students explore and explain how rocks and fossils are used to construct a timeline of the geological history of Earth. In Lesson 1, students determine the ages of Earth's rocks and fossils using relative and absolute dating methods and analyze evidence used to organize Earth's long history. In Lesson 2, students gather and use evidence about geologic processes, rocks, and fossils to construct explanations for how Earth's history is organized into the geologic time scale.

Standards:

Earth Science	**Reading**	**Writing**
MS-ESS2-1 MS-ESS2-2 MS-ESS2-3 MS-ESS2-4 MS-ESS2-5	RST.6-8.1 RST.6-8.7	WHST.6-8.1 WHST.6-8.2 WHST.6-8.7 WHST.6-8.8 WHST.6-8.9
Math MP.2 6.RP.A.1 7.RP.A.2 6.EE.B.6 7.EE.B.4		

Pacing Guide

- Lesson 1 - 6 periods
- Lesson 2 - 5 periods

Unit 2 - Ecosystem Dynamics

Time Frame: 15 Lessons

Essential Questions:

Why is the variety of life on Earth now different than what it was in Earth's past?
Why do some types of organisms have similar appearances, while other types of organisms appear very different?
How are dogs more similar to wolves than they are to cats?

Description:
In Life Science Unit 5, students explore and explain how fossils form, what data fossils provide, and how scientists use data to make inferences about the history of life on Earth. In Lesson 1, students model analysis of fossil evidence and explore relative and absolute age. In Lesson 2, students explore evidence of change in life over time, analyze patterns in extinction data, and model analysis of rock and fossil sequences. In Lesson 3, students identify patterns of similarities in the anatomy and embryological development across species.

Standards:

Life Science	**Reading**	**Writing**
MS-LS1-1 MS-LS1-2 MS-LS1-3 MS-LS1-4 MS-LS1-4 MS-LS1-6	RST.6-8.1 RST.6-8.7 RST.6-8.8 RI.8.8	WHST.6-8.1 WHST.6-8.2 WHST.6-8.9
Speaking and Listening SL.8.1 SL.8.4 SL.8.5	**Math** MP.4 6.RP.A.3 6.EE.C.9 6.SP.B.5	

Core Texts:
NPacing Guide

- Lesson 1 - 5 periods
- Lesson 2 - 5 periods
- Lesson 3 - 5 periods

Additional Resources: ■ You Solve it - How did marine fossils end up in the desert?	**Supplementary Texts:** ■ You Solve it - Which species is more closely related to the red panda?
Assessments: ***PreAssessment*** ■ *Unit PreTest* ***In ClassAssessments :*** ■ *Student Workbook* ■ *Explorations/Self Check* ***Quiz*** ■ *End of Lesson Quizzes 1-4* ***Unit Test*** ■ *End of Unit Test A* ***Lab:*** ■ *Lesson 1 - Make a Rock Formation*	**Assessments:** ■ *Unit PreTest* ***In ClassAssessments :*** ■ *Student Workbook* ■ *Explorations/Self Check* ***Quiz*** ■ *End of Lesson Quizzes 1-3* ***Unit Test*** ■ *End of Unit Test A* ***Lab:*** ■ *Lesson 1- Model Fossil Formation*

Unit 3 Evolution

Time Frame: 16 Lessons

Essential Questions:

What causes the different traits we observe in living things?
How can populations adapt to changes in the environment over time?
How can humans influence the resistance of insects to pesticides and bacteria to antibiotics?
How can new species arise and other species die out?

Description:
In Life Science Unit 5, students explored and explained how fossils form, what data fossils provide, and how scientists use data to make inferences about the history of life on Earth. In Unit 6, students explore the genetic basis of natural selection, adaptation, and genetic engineering. In Lesson 1, students model analysis of fossil evidence and explore relative and absolute age. In Lesson 2, students explore evidence of change in life over time, analyze patterns in extinction data, and model analysis of rock and fossil sequences. In Lesson 3, students identify patterns of similarities in the anatomy and embryological development across species.

Standards:

Earth Science	**Reading**	**Writing**
MS-ESS2-1 MS-ESS2-2 MS-ESS2-3 MS-ESS2-4 MS-ESS2-5	RST.6-8.1 RST.6-8.7	WHST.6-8.1 WHST.6-8.2 WHST.6-8.7 WHST.6-8.8 WHST.6-8.9
Math MP.2 6.RP.A.1 7.RP.A.2 6.EE.B.6 7.EE.B.4		

Pacing Guide

- Lesson 1 - 5 periods
- Lesson 2 - 5 periods
- Lesson 3 - 6 periods

Unit 4 Forces and Motion

Time Frame: 17 lessons

Essential Questions:

How do you experience friction on a daily basis?
When do you use pushing or pulling forces in your everyday life?
What examples of acceleration do you observe on your way to school?
What happens when two objects of different masses collide?

Description:
In Physical Science Unit 6, students analyze the relationship between forces and motion. Then students apply Newton's third law of motion to design a solution for the motion of two objects that collide. In Lesson 1, students describe the motion of an object relative to a reference point and analyze the effects of forces acting on a system. In Lesson 2, students analyze the relationship between force and acceleration as described by Newton's laws of motion. In Lesson 3, students apply Newton's third law of motion as they design a solution to a motion problem involving two colliding objects.

Standards:

Physical Science	**Reading**	**Writing**
MS-PS2-1 MS-PS2-2 MS-PS2-3 MS-PS2-4 MS-PS2-5	RST.6-8.1 RST.6-8.3	WHST.6-8.1 WHST.6-8.7
Math MP.2 6.SP.B.5 6.NS.C.5 6.EE.A.2 7.EE.B.3 7.EE.B.4		

Pacing Guide

- Lesson 1 - 6 periods
- Lesson 2 - 6 periods
- Lesson 3 - 5 periods

Additional Resources: ■ How Can You Engineer Fluorescent Algae?	**Additional Resources:** ■ You Solve it - How Can You Design a Safer Road?
Assessments: ***PreAssessment*** ■ *Unit PreTest* ***In ClassAssessments :*** ■ *Student Workbook* ■ *Explorations/Self Check* ***Quiz*** ■ *End of Lesson Quizzes 1-3* ***Unit Test*** ■ *End of Unit Test A* ***Lab:*** ■ *Lesson 1 - Model Protein Folding* ■ *Lesson 2 - Model Natural Selection in a Population* ■ *Lesson 3 - Analyze Selected Traits in Vegetables .*	***Assessments:*** ***PreAssessment*** ■ *Unit PreTest* ***In ClassAssessments :*** ■ *Student Workbook* ■ *Explorations/Self Check* ***Quiz*** ■ *End of Lesson Quizzes 1-3* ***Unit Test*** ■ *End of Unit Test A* ***Lab:*** ■ *Lesson 1 -Investigate Falling Objects: Air Resistance* ■ *Lesson 2 - Investigate Motion and Forces.* ■ *Lesson 3 - Design a Phone Case*