COURSE PLANNER

Experience Physics

The *Experience Physics* program integrates physical science, Earth and space science, and engineering design across five units of instruction called storylines. Each storyline is launched with an Anchoring Phenomenon that is revisited in the investigations comprising the storyline. *Experience Physics* is a blended and integrated approach that optimizes teaching time and student mastery through student driven digital and hands-on activities. Each learning experience is designed to integrate the three dimensions of science instruction: disciplinary core ideas, science and engineering practices, and crosscutting concepts.

	STORYLINE 1	STORYLINE 2
OVERVIEW	**FORCES AND MOTION** **23.5 days** Students explore the relationship between forces and motion.	**FORCES AT A DISTANCE** **45.0 days** Students investigate gravitational, electric, and magnetic forces, and the forces within atoms.
ANCHORING PHENOMENON	How will we get to Mars?	How does the moon shape our coastline?
INVESTIGATIONS	**1 Modeling Motion** (10.0 days), SE pp. 4–49 **2 Forces** (13.0 days), SE pp. 50–111	**3 Gravitational Forces** (10.0 days), SE pp. 112–153 **4 Electric Forces** (9.5 days), SE pp. 154–195 **5 Magnetic Forces** (11.0 days), SE pp. 196–239 **6 Forces in Materials** (14.0 days), SE pp. 241–277
STORYLINE EVALUATION	**Problem-Based Learning Experience** Staying Fit to Mars and Back	**Problem-Based Learning Experience** Electromagnetic Roller Coaster

COURSE-LEVEL ASSESSMENT

End-of-Year Assessment

STORYLINE 3	STORYLINE 4	STORYLINE 5
ENERGY CONVERSION **48.0 days** Students explore energy conversions in collisions, in engines and heat pumps, and in electromagnetic systems.	**WAVES AND ELECTROMAGNETIC RADIATION** **27.5 days** Students investigate the properties and behaviors of waves, using mathematical relationships.	**FROM THE NUCLEUS TO THE UNIVERSE** **33.5 days** Students explore the beginning of the universe, the death of stars, and the radioactive decay of atoms.
How does this machine transfer energy?	How do waves transfer energy?	How did the atoms that make up your body form?
7 Energy (8.5 days), SE pp. 278–319 **8 Collisions** (13.0 days), SE pp. 320–363 **9 Thermal Energy** (11.0 days), SE pp. 364–407 **10 Electromagnetic Energy** (15.0 days), SE pp. 408–461	**11 Waves** (8.5 days), SE pp. 462–509 **12 Electromagnetic Radiation** (9.0 days), SE pp. 510–537 **13 Information and Instrumentation** (9.5 days), SE pp. 538–565	**14 Nuclear Physics** (11.0 days), SE pp. 566–607 **15 Ages of Rocks** (11.0 days), SE pp. 608–651 **16 The Universe** (11.0 days), SE pp. 652–691
Problem-Based Learning Experience Energy in Complex Machines	**Problem-Based Learning Experience** Ultraviolet Radiation	**Problem-Based Learning Experience** A Mystery on Planet K

COURSE-LEVEL ASSESSMENT

End-of-Year Assessment

PACING GUIDE

The guide on these pages suggests time allocations for the core activities in each experience, investigation, and storyline (including labs). These allotments exclude "Got More Time" activities or projects you may choose to add.

SECTION	Days
STORYLINE 1 Forces and Motion	**23.5**
Encounter Anchoring Phenomenon	0.5
INVESTIGATION 1 Modeling Motion	**10.0**
Encounter Investigative Phenomenon	0.5
1 Displacement and Velocity	2.5
2 Acceleration	2.5
3 Circular and Projectile Motion	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 2 Forces	**13.0**
Encounter Investigative Phenomenon	0.5
1 Force, Mass, and Acceleration	2.5
2 Types of Forces	2.5
3 Forces on Systems	3.0
4 Earth's Surface Forces	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5

SECTION	Days
STORYLINE 2 Forces at a Distance	**45.0**
Encounter Anchoring Phenomenon	0.5
INVESTIGATION 3 Gravitational Forces	**10.0**
Encounter Investigative Phenomenon	0.5
1 Universal Gravitation	2.5
2 Orbital Motion	2.5
3 Kepler's Laws	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 4 Electric Forces	**9.5**
Encounter Investigative Phenomenon	0.5
1 Coulomb's Law	2.5
2 Electric Fields	2.5
3 Electric Current	2.5
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 5 Magnetic Forces	**11.0**
Encounter Investigative Phenomenon	0.5
1 Magnetic Forces and Fields	3.0
2 Inducing Magnetism	3.0
3 Inducing Current	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 6 Forces in Materials	**14.0**
Encounter Investigative Phenomenon	0.5
1 Atoms and Atomic Structure	3.0
2 Attractive and Repulsive Forces	3.0
3 Material Properties	3.0
4 Structure and Function	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5

SECTION	Days
STORYLINE 3 Energy Conversion	**48.0**
Encounter Anchoring Phenomenon	0.5
INVESTIGATION 7 Energy	**8.5**
Encounter Investigative Phenomenon	0.5
1 Classifying Energy and Work	2.5
2 Mechanical Energy	2.0
3 Conservation of Energy	2.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 8 Collisions	**13.0**
Encounter Investigative Phenomenon	0.5
1 Momentum and Impulse	3.0
2 Conservation of Momentum	4.0
3 Collisions in Earth's Crust	4.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 9 Thermal Energy	**11.0**
Encounter Investigative Phenomenon	0.5
1 Temperature	3.0
2 Thermal Equilibrium and Heat Flow	3.0
3 Heat Flow Within Earth	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 10 Electromagnetic Energy	**15.0**
Encounter Investigative Phenomenon	0.5
1 Electric Potential	3.0
2 Energy in Electric Circuits	3.0
3 Power Generation	3.0
4 Energy Resources and Conservation	4.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5

GOT MORE TIME? If time allows, personalize and enhance your instructional plan by assigning the activities with the Got-More-Time icon in the planners. Activities include: Analyzing Data, Explain Video, PhET Simulation, Math Tutorial Video, and, Writing About Science.

SECTION	Days
STORYLINE 4 Waves and Electromagnetic Radiation	**27.5**
Encounter Anchoring Phenomenon	0.5
INVESTIGATION 11 Waves	**8.5**
Encounter Investigative Phenomenon	0.5
1 Wave Properties	2.0
2 Wave Behavior and Energy	2.5
3 Wave Optics	2.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 12 Electromagnetic Radiation	**9.0**
Encounter Investigative Phenomenon	0.5
1 Electromagnetic Waves and Their Properties	2.0
2 Particle–Wave Duality	2.5
3 Electromagnetic Radiation and Matter	2.5
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 13 Information and Instrumentation	**9.5**
Encounter Investigative Phenomenon	0.5
1 Digital Information	2.5
2 Capturing and Transmitting Information	2.5
3 Capturing and Transmitting Energy	2.5
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5

SECTION	Days
STORYLINE 5 From the Nucleus to the Universe	**33.5**
Encounter Anchoring Phenomenon	0.5
INVESTIGATION 14 Nuclear Physics	**11.0**
Encounter Investigative Phenomenon	0.5
1 Nuclear Particles	3.0
2 Nuclear Forces	3.0
3 Fission and Fusion	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 15 Ages of Rocks	**11.0**
Encounter Investigative Phenomenon	0.5
1 Radioactive Decay	3.0
2 Radiometric Dating	3.0
3 Geologic Time	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5
INVESTIGATION 16 The Universe	**11.0**
Encounter Investigative Phenomenon	0.5
1 The Sun	3.0
2 Stars	3.0
3 The Big Bang	3.0
Investigation Assessment*	1.5
GOT MORE TIME Activities	+2.5

* Investigation Assessment can include Performance-Based Assessment, Virtual Lab PBA, Investigation Test, and Revisit Anchoring Phenomenon.

Notes