### City of Angels School Independent Study – Los Angeles Unified School District

### INSTRUCTIONAL FRAMEWORK – Physics A Course # 361531

Textbook: California HMH Science Dimensions: HS Physics in the Universe

The Next Generation Science Standards (NGSS) are covered in both A & B Courses. This course is also aligned with Reading and Writing Standards for Literacy in Science and Technical Subjects for Grades 6–12, part of the Common Core State Standards (CCSS) available at http://www.cde.ca.gov/re/cc/.

**Text:** Access the HMH website/eBook by clicking the app in the left column of your Schoology course.

- Launch the app
- Select HMH Science
- Click **discover**
- Make sure you are in the correct textbook: California HMH Science Dimensions: HS Physics in the Universe
- Select the **Student ebook**

Assignments and Grades Final course grades will be based on the following suggested matrix:	
Book work	40%
Labs	20%
Unit	20%
Performance	
Task	
Unit Practice	20%
and Review	

Grading Rubric	
4	-Accurate analysis cites strong textual evidence for
	support.
	-Well developed communication of content ideas.
3	-Accurate analysis cites textual evidence for support
	-Good communication of content ideas
2	-Mostly accurate analysis which cites some textual
	evidence for support.
	-Basic communication of ideas
1	-Minimally accurate analysis which provides no
	textual evidence for support.
	-Poor communication of content ideas.
	-Only partially correct and partially complete
	answers, no evidence.
0	-Inaccurate or no textual analysis.
	-Very poor (or no) communication of ideas.

# <u>Weeks 1-2</u>

#### Unit 1: Motion and Forces

Read p. 1-2, answer the Explain question on p. 2

p. 2-3 Language Development: fill out at least two boxes for each term as you go through the unit.

#### 1.1 Motion in One and Two Dimensions

#### 1. Answer Explain on p. 5

- 2. Exploration 1
  - Read p. 1-9
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
  - Hands on Lab, p. 7 reasonable accommodations/changes accepted, discuss with your teacher.
- 3. Exploration 2
  - Read p. 10-13
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 4. Exploration 3
  - Read p. 14-17
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Data Analysis p. 18-19
- 6. Lab options: (choose 1)
  - Hands on lab p. 20-21
  - Labster Lab Newton's Second Law of Motion: Speed and Acceleration
- 7. Self-Check, p. 22-24 Check your answers online, take notes or create a study guide for Unit test

#### 1.2 Force, Mass, and Acceleration

- 1. Answer Predict on p. 26
- 2. Exploration 1
  - Read p. 26-29
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 3. Exploration 2
  - Read p. 30-34
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 4. Exploration 3
  - Read p. 36-37
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Exploration 4
  - Read p. 39-40
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

6. Lab:

• Labster: Newton's First Law of Motion: Balanced and unbalanced forces

7. Self-Check, p. 42-44 – Check your answers online, take notes or create a study guide for Unit test

#### 1.3 Engineering

#### 1. Answer Evaluate on p. 45

#### 2. Exploration 1

- Read p. 46-49
- Answer all questions within the exploration (most can be checked using online HMH ebook)

#### 3. Exploration 2

- Read p. 50-55
- Answer all questions within the exploration (most can be checked using online HMH ebook)

#### 4. Exploration 3

- Read p. 56-63
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Self-Check, p. 64-66 Check your answers online, take notes or create a study guide for Unit test

# Labster Lab: Newton's First Law of Motion: Balanced and unbalanced forces

Read Unit 1 Review, p.67-74 Complete Performance Task on p.72 Complete Unit Practice and Review p. 73-74

### <u>Weeks 3-4</u>

#### **Unit 2: Momentum and Collisions**

Read p. 75-76, answer the Predict question on p. 74

p. 77-78 Language Development: fill out at least two boxes for each term as you go through the unit.

#### 2.1 Momentum

- 1. Answer Explain on p. 79
- 2. Exploration 1
  - Read p. 80-82
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 3. Exploration 2
  - Read p. 83-84
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 4. Exploration 3
  - Read p. 85-86
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

5. Self-Check, p. 88-90 – Check your answers online, take notes or create a study guide for Unit test

#### 2.2 Collisions and Tectonic Plates

- 1. Answer Explain on p. 91
- 2. Exploration 1
  - Read p. 92-94
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

#### 3. Exploration 2

- Read p. 95-98
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 4. Exploration 3
  - Read p. 99-104
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
  - Hands on Lab, p. 101 reasonable accommodations/changes accepted, discuss with your teacher.

#### 5. Labster Lab: Collisions: Elastic and inelastic forces

6. Self-Check, p. 106-108 – Check your answers online, take notes or create a study guide for Unit test

Read Unit 2 Review, p. 110-116 Complete Performance Task on p. 114 Complete Unit Practice and Review p. 115-116

# <u>Weeks 5-6</u>

#### Unit 3: Forces at a Distance

Read p. 117-118, answer the Predict question on p. 118

p. 119-120 Language Development: fill out at least two boxes for each term as you go through the unit.

#### 3.1 Gravitational Force and Planetary Motion

1. Answer Infer on p. 121

#### 2. Exploration 1

- Read p. 122-127
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 3. Exploration 2
  - Read p. 128-131
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

#### 4. Exploration 3

- Read p. 132-135
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Self-Check, p. 136-138 Check your answers online, take notes or create a study guide for Unit test

#### 3.2 Electrostatic Force

- 1. Answer Design on p. 139
- 2. Exploration 1
  - Read p. 140-143
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

#### 3. Exploration 2

- Read p. 144-147
- Answer all questions within the exploration (most can be checked using online HMH ebook)

#### 4. Exploration 3

- Read p. 148-151
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Exploration 4
  - Read p. 152-154
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

6. Self-Check, p. 156-158 – Check your answers online, take notes or create a study guide for Unit test

#### 3.3 Forces in Materials

- 1. Answer Infer on p. 159
- 2. Exploration 1
  - Read p. 160-163
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 3. Exploration 2

- Read p. 164-169
- Answer all questions within the exploration (most can be checked using online HMH ebook)

### 4. Exploration 3

- Read p. 170-172
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Exploration 4
  - Read p. 173-175
  - Answer all questions within the exploration (most can be checked using online HMH ebook)

### 6. Exploration 5

- Read p. 176-178
- Answer all questions within the exploration (most can be checked using online HMH ebook)
- 7. Self-Check, p. 180-182 Check your answers online, take notes or create a study guide for Unit test

### Labster: Newton's Law of Gravitation: Mathematical expression of gravitational force

Read Unit 3 Review, p. 183-190 Complete Performance Task on p. 188 Complete Unit Practice and Review p. 189-190

### <u>Weeks 7-8</u>

#### Unit 4: Energy Conservation

Read p. 191-192, answer the Explain question on p. 192

p. 193-194 Language Development: fill out at least two boxes for each term as you go through the unit.

#### 4.1 Conservation Energy

- 1. Answer Explain on p. 195
- 2. Exploration 1
  - Read p. 196-199
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 3. Exploration 2
  - Read p. 200-203
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 4. Exploration 3
  - Read p. 204-209
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Self-Check, p. 212-182 Check your answers online, take notes or create a study guide for Unit test

#### 4.2 <u>Work</u>

- 1. Answer Explain on p. 215
- 2. Exploration 1
  - Read p. 216-217
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 3. Exploration 2
  - Read p. 218-222
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 4. Exploration 3
  - Read p. 223-227
  - Answer all questions within the exploration (most can be checked using online HMH ebook)
- 5. Self-Check, p. 228-230 Check your answers online, take notes or create a study guide for Unit test.
- Labster Lab: **Conservation of Energy: maximize the mechanical energy of a rollercoaster** Read Unit 4 Review, p. 231-238

Complete Performance Task on p. 236

Complete Unit Practice and Review p. 237-238