



## Practice 1

### ***Creating Representations*** 1

Create representations that depict physical phenomena.

## Practice 2

### ***Mathematical Routines*** 2

Conduct analyses to derive, calculate, estimate, or predict.

## Practice 3

### ***Scientific Questioning and Argumentation*** 3

Describe experimental procedures, analyze data, and support claims.

## SKILLS

**1.A** Create diagrams, tables, charts, or schematics to represent physical situations.

**1.B** Create quantitative graphs with appropriate scales and units, including plotting data.

**1.C** Create qualitative sketches of graphs that represent features of a model or the behavior of a physical system.

**2.A** Derive a symbolic expression from known quantities by selecting and following a logical mathematical pathway.

**2.B** Calculate or estimate an unknown quantity with units from known quantities, by selecting and following a logical computational pathway.

**2.C** Compare physical quantities between two or more scenarios or at different times and locations in a single scenario.

**2.D** Predict new values or factors of change of physical quantities using functional dependence between variables.

**3.A** Create experimental procedures that are appropriate for a given scientific question.

**3.B** Apply an appropriate law, definition, theoretical relationship, or model to make a claim.

**3.C** Justify or support a claim using evidence from experimental data, physical representations, or physical principles or laws.