







Contents

PHYSICS



>1 Unit Forces and Motion

- 4 Introduction Forces and Motion at an Amusement Park
- 6 > Topic 1 Testing a Homemade Shooter
- 9 > Topic 2 Balancing Forces
- 12 > Topic 3 Balancing Moments 
- 16 > Topic 4 Making a Scale
- 19 > Topic 5 Calculating Speed, Distance and Time
- 22 > Topic 6 Experimenting with Inertia 
- 26 > Topic 7 Investigating Force, Mass and Acceleration
- 29 > Topic 8 Making a Balloon Rocket
- 32 Progress Check

>2 Unit Matter

- 34 Introduction What Is Matter?
- 36 > Topic 1 Modeling the Structure of an Atom
- 39 > Topic 2 Modeling the Solar System 
- 42 > Topic 3 Experimenting with Static 
- 46 > Topic 4 Reducing Friction
- 49 > Topic 5 Calculating Density
- 52 > Topic 6 Calculating Pressure 
- 56 > Topic 7 Testing the Effect of Heat on Solids, Liquids and Gases 
- 59 > Topic 8 Changing the State of Water
- 62 Progress Check

>3 Unit Energy

- 64 Introduction Forms of Energy
- 66 > Topic 1 Transforming Energy 
- 69 > Topic 2 Calculating Kinetic Energy 
- 72 > Topic 3 Transforming Gravitational Potential Energy
- 75 > Topic 4 Calculating Work and Power
- 78 > Topic 5 Testing Heat Conduction
- 82 > Topic 6 Creating Convection in Fluids
- 85 > Topic 7 Absorbing and Reflecting Heat Radiation
- 88 > Topic 8 Making a Flask
- 92 Progress Check

94 Video Index

95 Worksheets