

Matter and Energy

eEdition

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1 Introduction to Matter

the BIG idea

Everything that has mass and takes up space is matter.

1.1 Matter has mass and volume.	9
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1.2 Matter is made of atoms.	16
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1.3 Matter combines to form different substances.	21
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1.4 Matter exists in different physical states.	27

2 Properties of Matter

the BIG idea

Matter has properties that can be changed by physical and chemical processes.

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2.2 Changes of state are physical changes.	50
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2.3 Properties are used to identify substances.	58
CONNECTING SCIENCES <i>Separating Minerals</i>	63

*What properties could help you identify this sculpture as sugar?
page 38*

3 Energy 68

the BIG idea

Energy has different forms, but it is always conserved.

- 3.1** Energy exists in different forms. 71
 THINK SCIENCE *Gasoline or Electric?* 77
- 3.2** Energy can change forms but is never lost. 78
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- 3.3** Technology improves the ways people use energy. 86
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4 Temperature and Heat 100

the BIG idea

Heat is a flow of energy due to temperature differences.

- 4.1** Temperature depends on particle movement. 103
 MATH IN SCIENCE *Metric Conversions* 109
- 4.2** Energy flows from warmer to cooler objects. 110
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- 4.3** The transfer of energy as heat can be controlled. 116
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Internet Resources @ ClassZone.com

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EXPLORE THE BIG IDEA

Chapter Opening Inquiry

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| 2. Float or Sink, Hot Chocolate, Internet Activity: Physical and
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| 3. A Penny for Your Energy, Hot Dog!, Internet Activity: Energy | 69 |
| 4. Moving Colors, Does It Chill?, Internet Activity: Kinetic Theory | 101 |

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EXPLORE

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