SUMMARY

Fluids on the Move

Looking Back

Fluids are essential to life.

- Fluids include all liquids and gases.
- Air and water are two fluids essential to life on Earth.
- Fluids are part of all living things.



A key characteristic of fluids is their ability to flow.

- Fluids have no definite shape and can flow.
- Flow can be laminar (smooth) or turbulent (rough and irregular).
- Streamlined objects reduce turbulence and create more laminar flow.







The way fluids flow depends on various factors.

- The particle theory can be used to explain the behaviour of fluids.
- Viscosity is a measure of how thick or thin a fluid is and can change with temperature.
- Flow rate can be used as a measure of the viscosity of a fluid.
- Fluid particles are attracted to each other (cohesion) and to the sides of their containers (adhesion).







BIG Ideas

- Fluids are an important component of many systems.
- Fluids have different properties that determine how they can be used.
- Fluids are essential to life.

The skills of scientific inquiry can be used to investigate factors that affect the flow of different fluids.

- Inquiry skills can be used to investigate how fluids flow at different rates.
- Experimentation skills can be used to determine how the type of surface affects the flow rate of a fluid moving down a slope.
- Experimentation skills can be used to determine how temperature affects the viscosity of different fluids.

Humans control fluid flow (either through objects or around them) to meet certain needs.

- Fluid mechanics is the study of how fluids behave when in motion or at rest.
- Aerodynamics is the study of moving gases; hydrodynamics is the study of moving liquids.
- The need to control fluid flow occurs in many aspects of life.





Research skills can be used to investigate applications of fluids.

• Research skills can be used to explore different applications of fluid mechanics and careers associated with fluid mechanics.

The flow of fluids can have positive and negative effects on society and the environment.

- Fluid flow plays a role in many aspects of our daily lives, from health care to sports, from the food industry to transportation.
- Managing fluid flow is an important part of many careers and hobbies.
- Well-managed fluid flow can provide benefits, such as flood control, generation of electricity, and efficient motion.
- Poorly managed fluid flow creates considerable costs—both financial and environmental.

VOCABULARY

fluids, p. 180 particle theory of matter, p. 182 laminar flow, p. 185 turbulent flow, p. 185 eddy, p. 185 streamlined, p. 186 flow rate, p. 187 viscosity, p. 188 cohesion, p. 188 surface tension, p. 188 adhesion, p. 189 fluid mechanics, p. 194 fluid dynamics, p. 194 aerodynamics, p. 194



