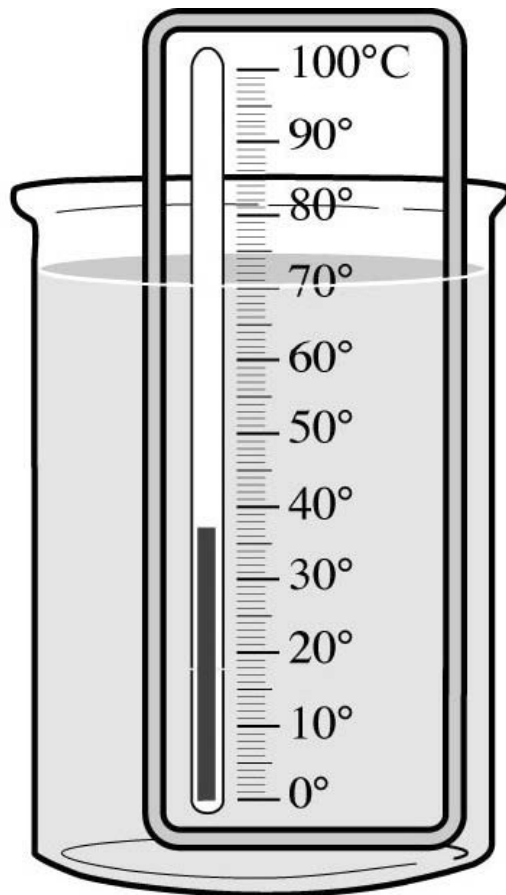


# Science

20 3rd Grade

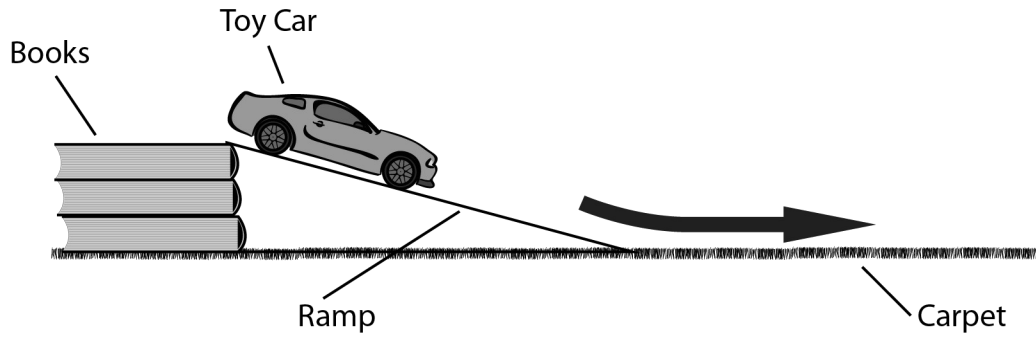


Which of the following is the temperature of the water in the glass beaker?

- F** 32 °C
- G** 37 °C
- H** 43 °C
- J** 52 °C

**21 4th Grade**

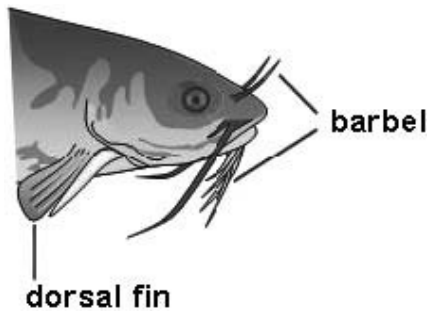
A student sets up an experiment using the ramp below to test how far a car would travel after leaving a ramp.



What force is responsible for causing the car to stop?

- A** gravity
- B** magnetism
- C** pushing the car
- D** friction

22 5th Grade



Catfish

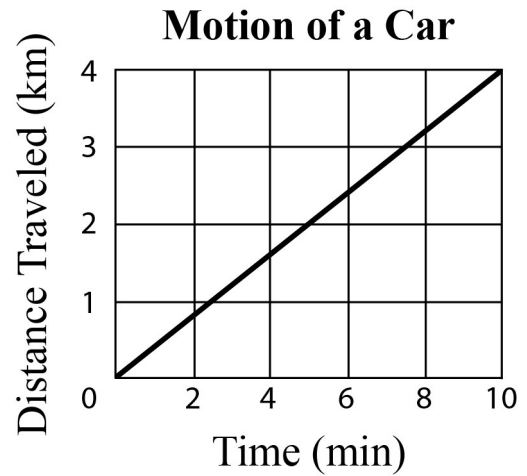
Catfish get their name from whiskery structures called barbels. Barbels are long, finger-like structures found near the mouth and help the catfish locate smaller invertebrates. Taste buds are located on barbels. Catfish also have small eyes and a mouth that can expand to a very large size. They are considered bottom-feeders because they swim near the lower parts of water. Behind the mouth and in front of the dorsal fin is a hollow, bony spine. In some species of catfish, the spine can deliver a stinging substance.

What are spines most likely used for?

- F defense
- G nutrition
- H reproduction
- J movement

23 6th Grade

The graph below represents the motion of a car.

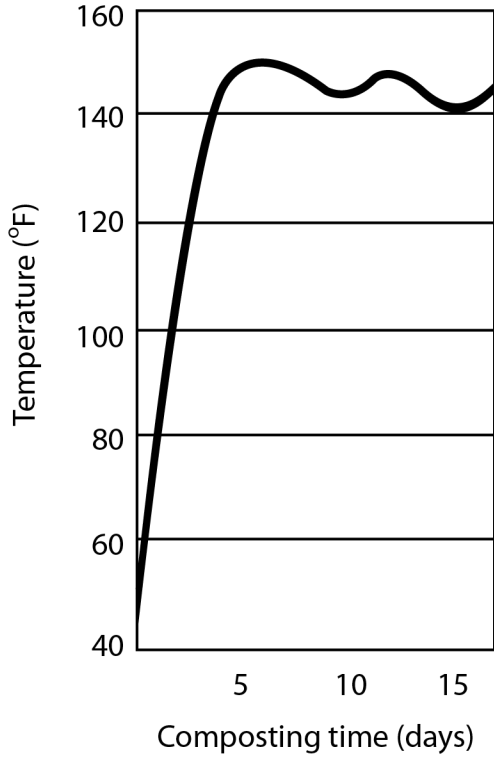


What is the average speed of the car?

- A 0.4 km/min
- B 2.5 km/min
- C 14 km/min
- D 40 km/min

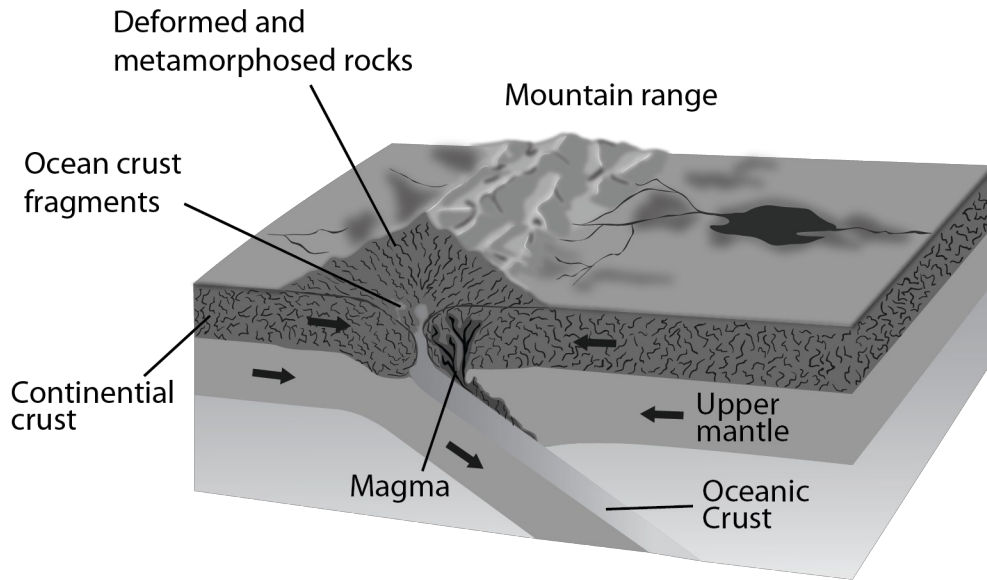
24 7th Grade

Students were studying the role of decomposers in composting. A compost bin was set up and filled with sources of carbon and nitrogen, moist soil, and a starter solution containing microorganisms. The graph below shows the change in temperature of the bin after two weeks. What is the most probable cause for the increase in temperature?



- F The soil was heated to provide optimal growth conditions for the bacteria.
- G During decomposition, the bacteria gave off energy in the form of heat.
- H During decomposition, the bacteria gave off moisture which increased the temperature.
- J The soil chemistry was altered, which caused an increase in the temperature.

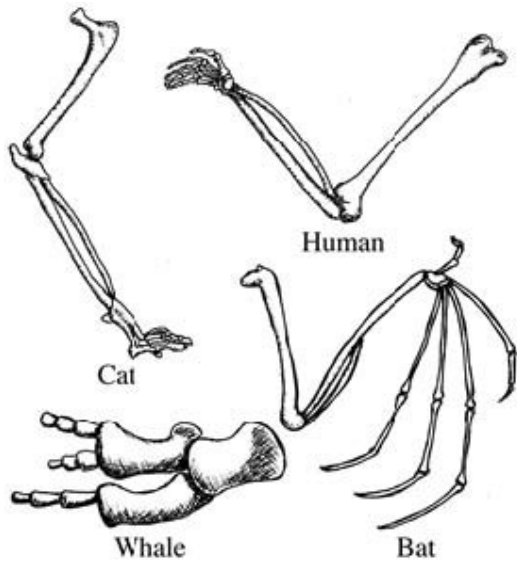
When two tectonic plates collide, new mountain ranges can be formed as rock in the Earth's crust is thrust upward. Usually this action involves one plate being pushed underneath another plate as shown in the diagram below.



Which of Newton's Laws best describes why the edge of the right-hand plate forms mountains while the left-hand plate is submerged beneath the right in the picture?

- A Law of Inertia (1<sup>st</sup> Law)
- B Law of Acceleration (2<sup>nd</sup> Law)
- C Action-Reaction Law (3<sup>rd</sup> Law)
- D Law of Universal Gravitation (4<sup>th</sup> Law)

**26 Biology**



The diagrams above show the forelimbs of four different organisms. A comparison of these organisms' forelimbs indicates that these organisms evolved —

- F** from a common ancestor in the past
- G** from different adaptations for similar functions
- H** in similar ways over time
- J** unique characteristics in different environments

**27 Chemistry**

How many molecules are in 2.50 moles of  $H_2O$ ?

- A**  $1.51 \times 10^{24}$  molecules of  $H_2O$
- B**  $4.15 \times 10^{-24}$  molecules of  $H_2O$
- C**  $3.01 \times 10^{24}$  molecules of  $H_2O$
- D**  $8.31 \times 10^{-24}$  molecules of  $H_2O$

**28 Physics**

One object carries a charge of +320 microcoulombs and a second object carries a charge of +640 microcoulombs. Determine the electrostatic force between two charged objects when they are placed 1.50 meters apart. Use  $k = 8.99 \times 10^9 \text{ Nm}^2/\text{C}^2$ .

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.