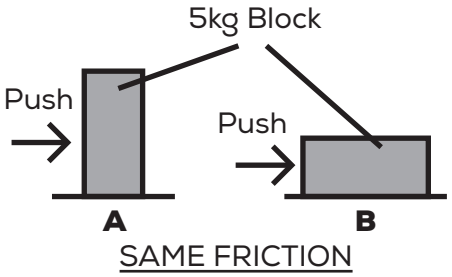
COMPLETE CONCEPT INTEGRATION™ SCIENCE

APPLICATION: SURFACE AREA

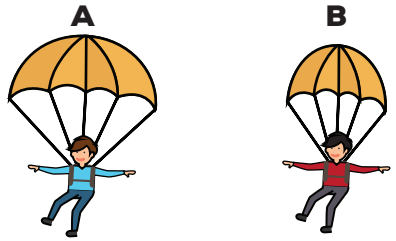
FRICTION



SAME FRICTION

An increase in the exposed surface area of an object of the same mass will NOT increase the amount of friction between the surface of A and the surface of B.

AIR & WATER RESISTANCE

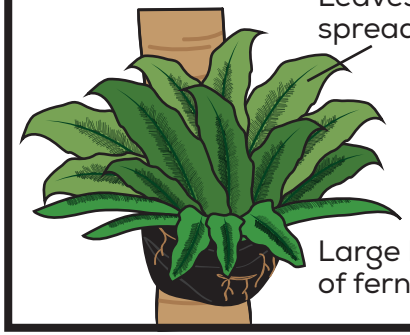


Falls slower Falls faster

The larger the exposed surface area of the object, the greater the amount of air resistance / water resistance acting on the object.

E.g. Parachute

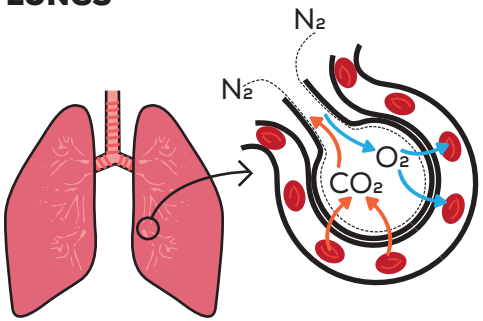
LEAVES



Leaves have a large exposed surface area in contact with sunlight to absorb **maximum** sunlight in the process of photosynthesis to make food for the plant.

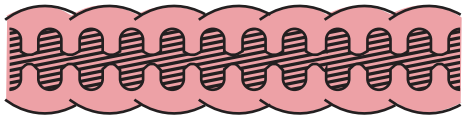
*Cactus has needle-like leaves to reduce water loss through the stomata as water vapour in the process of transpiration.

LUNGS



The lungs contain numerous air sacs that increase the exposed surface area for faster gaseous exchange.

SMALL INTESTINE



Contains numerous villi / folds that increase the exposed surface area of the small intestine in contact with digested food for faster absorption of **DIGESTED** food through the walls of the small intestine.

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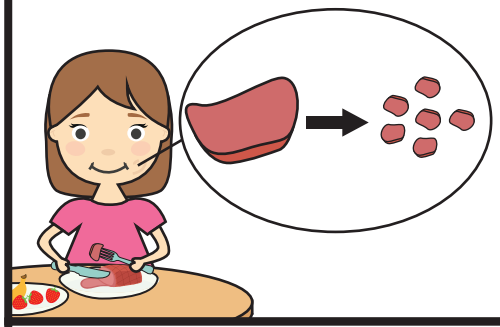
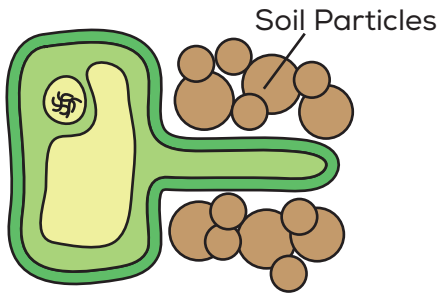
CHEWING



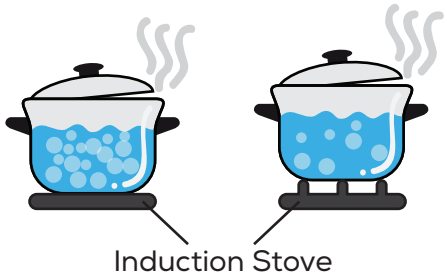
Breaks down food into smaller pieces, increasing the exposed surface area of the food in contact with digestive juices for faster digestion of food.

ROOT CELL



Elongated protusion increases exposed surface area of the roots in contact with the soil for faster absorption of water and mineral salts from the soil.

HEAT ENERGY TRANSFER

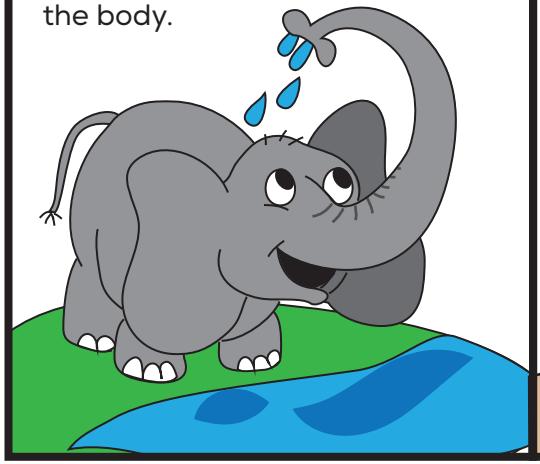


When there is a larger surface area of the object in contact with another substance /object, heat from the object will be lost to _____ faster/gained from _____ faster.

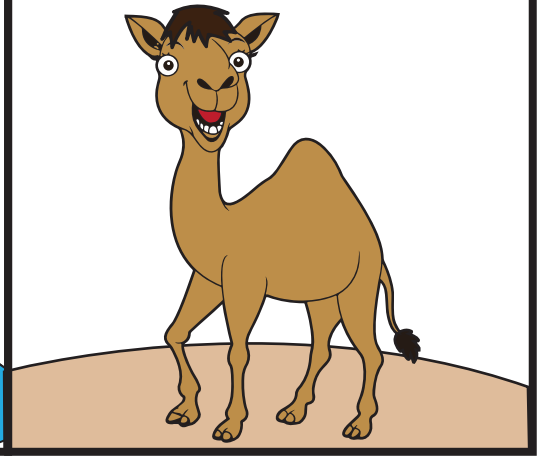
ADAPTATIONS

The tongue of a dog has a large surface area. The saliva gains heat from the dog's body faster and evaporates faster, helping the dog to feel cooler.

The elephant has large ears to increase exposed surface area of its body in contact with the surrounding air to allow for faster loss of excess heat from the body.



The camel has large feet, which increase exposed surface area of its feet in contact with the sand. This prevents the camel from sinking into the sand easily.



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