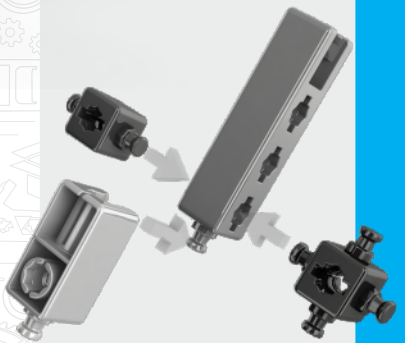
Engino®

CREATIVE™ engineering maker Master

20 IN 1 MODELS

2 models printed instructions (included)

18 models online 3D instructions



⊕ SNAP-FIT SYSTEM

Product code:
CE201MM-A

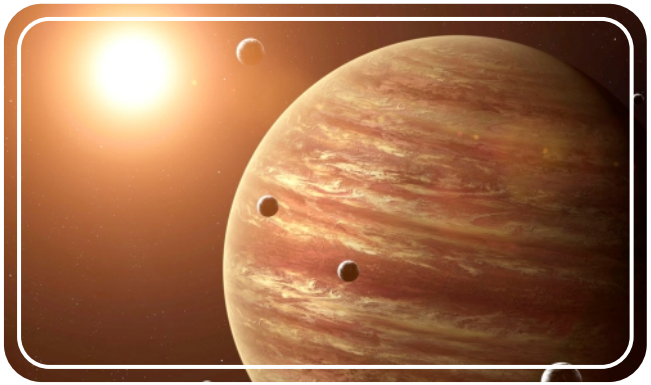
Online theory & activities

Theory

What we will learn

"Jupiter", also known as "Father of Thunder", was the king of the ancient Roman gods. He used to live on the skies and used thunders as a weapon against his enemies. Therefore, planet Jupiter gets its name after this godness, as it is the largest and heaviest planet of our solar system. Jupiter is the king of the other planets, a giant planet with shiny coloured clouds. Jupiter is the fifth planet from the Sun and it has many moons orbiting around it. It takes 11 Earth hours to make a complete circle. Do you know the characteristics of planet Jupiter? Are you familiar with Jupiter's life? Read through the pages of the booklet of "***Astrophysics: Jupiter***" to gain useful information and amazing facts about this planet. Follow the building instructions, contained in this booklet, to build your own Jupiter robot. Finally, take the quiz to test your newly acquired knowledge.

Jupiter, the King of the Planets



Jupiter characteristics

Jupiter is the king of planets. In addition, it is more than twice as massive as all the other planets together. In fact, its large volume can fit up to 1.300 Earth sized planets. It is a gas giant planet, made mostly of hydrogen and helium. It is covered by brightly, twisting cloud belts and zones. Jupiter has three rings, which are too thin to be visible. More than 60 moons orbit around it, including Ganymede, the largest one.

Jupiter's spot

The most amazing feature on Jupiter is the great "Red Spot". It was first seen in the 17th century when telescopes started to be used. This spot is essentially a hurricane undergoing on the atmosphere of Jupiter for more than 350 years. It is whirling around its center every six Earth days! The Great spot's size is at least three times the size of Earth. The colour of the storm is mainly red, but varies due to the composition of the spot.

Jupiter's life

Jupiter was the sixth child of the Titan gods Saturn and Ops. His father was worried about his children's power and decided to swallow them. However, Ops hid Jupiter from her husband. As soon as Jupiter grew up, he rescued his five brothers and sisters. Then, he became the ruler of the world! He got married to his sister Juno, however he had a lot of children with different women. Some of them were Gods while others were demigods, such as Hercules.

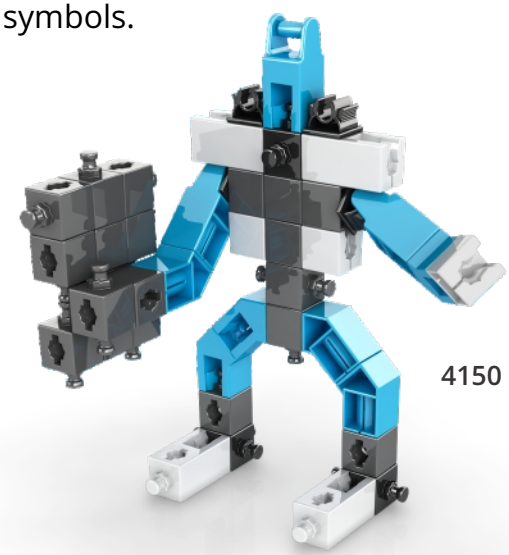
Did you know?

In 1610, the Italian astronomer Galileo Galilei used his telescope to discover that Jupiter had four large moons orbiting around. His discovery overturned our understanding about the bodies in our solar system. Galileo concluded that the Sun is the center of the Universe, not the Earth. Today, the four moons called Io, Europa, Ganymede and Callisto are called the "Galileans moons".

The "Galilean moons" of Jupiter

Jupiter

Jupiter was the God of the sky and thunder. He could control the weather, causing rain or storms. He was a powerful God. He dispensed justice among Gods and humans. He had the power to throw lighting bolts against liars or those who disobeyed Gods' rules. Jupiter had the ability to shift his shape into a person or an animal. Moreover, if someone made him angry, he could turn him into an animal. The thunderbolts, the eagle and the oak tree were his symbols.



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Quiz

Can you distinguish myths from facts about Jupiter? Put a ✓ into the correct box to state whether the statement is true or false.

1. Jupiter is the largest and the lightest planet in our solar system.

☐ True ☐ False

2. The Great red spot is a huge storm that is going on Jupiter.

☐ True ☐ False

3. The Jupiter planet took its name from the ancient Olympian God Zeus.

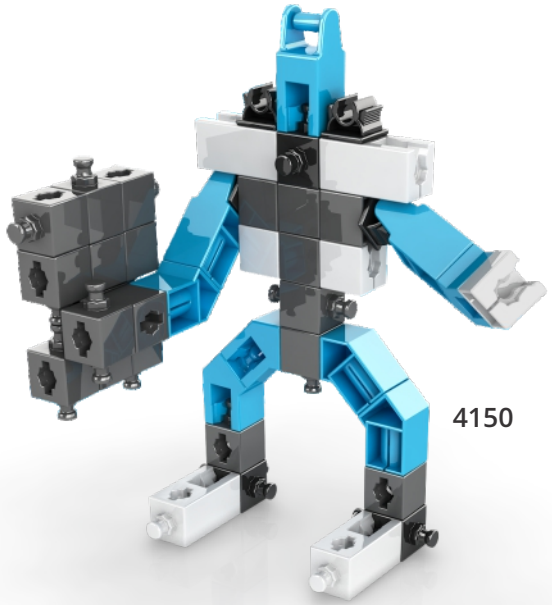
☐ True ☐ False

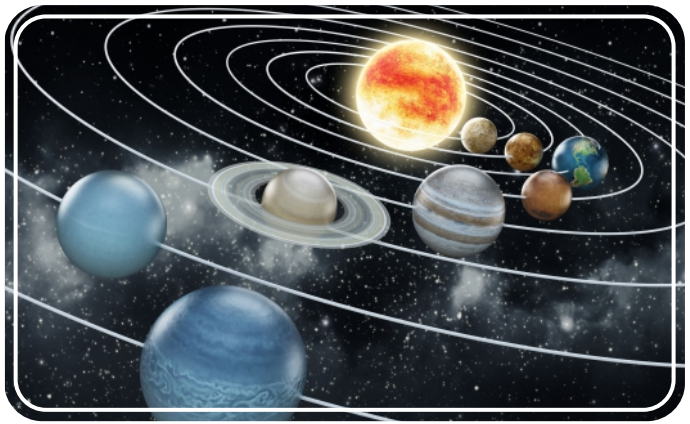
4. Jupiter was the God of the Sea and he had the ability to cause earthquakes.

☐ True ☐ False

Experiment with the planetary pendulum

As you have already learned planet Jupiter is the largest and heaviest planet of our solar system. You also know that it is the fifth planet from the Sun. Our solar system consists of a star, called the Sun, and eight planets. Starting from the closest to the Sun, these planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. The orbits of the planets differ. Planets in large distance from the Sun, the outer ones, need more time to make an orbit around the Sun compared to the inner ones. For instance, Mars is an inner planet and makes a shorter orbit compared to Jupiter which is an outer planet.





- Why do planets in large distance make an orbit in longer time compared to the inner ones?
- Which factors affect the period of a swinging pendulum?

Are you ready to discover how planets stay in orbit around the Sun?
Let's perform the next page's experiment to find out the answers for all these questions!
Get ready to discover circular orbits and Kepler's laws.

Learning about: **Circular Orbits**

Planetary pendulum

Planets orbit the Sun due to gravity, in almost circular orbits. We can simulate this motion with a conical pendulum. In this experiment, the tension of the string keeps the mass in orbit.

Discover:

- Which factors determine the period of a pendulum?
- Planetary orbits.

Level Of Difficulty ★★★☆☆

Materials Needed:

- Engino® (ce201mm-a).
- Long string (~3 meters), Ruler, Scissors, Stopwatch and Calculator.

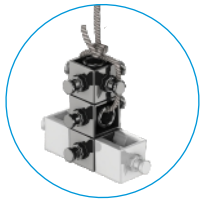
Procedure:

1. Find the instructions and build the **Planetary pendulum Case A** model.

2. Follow the instructions of **exercises 1** and **2** to create a circular orbit and a pendulum.

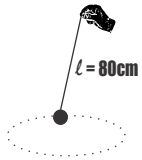
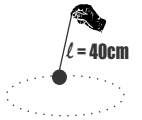
3. Hold the model above the circle and from the marked position of 80cm. Read **exercise 3** and complete the table. **Note** that one more person is needed to count the orbits.

1. Cut a string to have a length of 1 metre and tie it as it is shown on the right. Mark the locations on the string which lay at 40 cm and 80 cm from your model.



2. Cut a string of 90 cm long and tie it on its edges. Place it on the floor and stretch it to get a circular shape (see on the side).

3. Give your pendulum an initial pull and make it swing over the circumference of the circle. Use the stopwatch to measure the time it takes to make 10 orbits. Use your calculator to divide your finding by 10 in order to calculate the period. Repeat the same by holding the model from the 40cm.

Pendulum Length (cm)	Duration for 10 orbits (s)	Period (s) = Duration/10
		
		

Procedure:

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4. Build **the Planetary pendulum case B** model, to increase the mass of your model. Hold the model from the marked position of 80 cm and repeat the same process to calculate the period for this case. Do **exercise 4**.

5. In exercise 3 the mass was kept the same and the length was increased while in exercise 4 the length was kept the same and the mass was increased. Write which factors affect the pendulum period on **exercise 5**.

6. To create another orbit, cut a new string with a length of 45 cm. Place it in such a way that both orbits will have the same centre. Read **exercise 6** and simulate the orbit of two planets.

7. We can simulate the distance from the Sun to the length of the pendulum.

4. a) How much time does it take to make 10 orbits?
b) Calculate the period.

a) It takes ☐ s to make 10 orbits.

b) period = duration of 10 orbits /10

period = ☐ /10

period = ☐ s

5. a) Does the length affect the period of the pendulum? If yes, how?
b) Does the mass affect the period of the pendulum? If yes, how?

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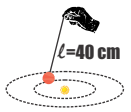
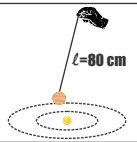
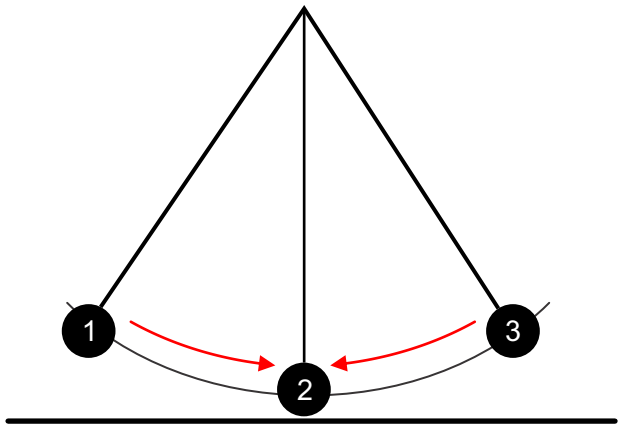
6. In this exercise we are going to imitate the orbits of Mars and Jupiter around the Sun. Can you measure the period of the two planets that orbit the Sun at different distances?
Tip: You know the period for Jupiter from previous task!

	Mars	**Jupiter**
Orbit	Small (45 cm)	Large (90 cm)
Distance		
Duration for 10 orbits		
Period (s)		

Theory

Circular Motion

Circular motion is defined as the rotation about a point following a circular path or a circular orbit. It can be uniform, that is with constant angular rate of rotation, or non-uniform, that is with a changing rate of rotation. For any object that moves in a circular path, there is a force acting on it causing it to change from its straight-line path, accelerate inwards and move along a circular path. An example of circular motion is the Earth orbiting the Sun. A fundamental element of circular motion is period and it is defined as the time needed for a complete revolution. For instance, the Earth's period around the Sun is 365 days.

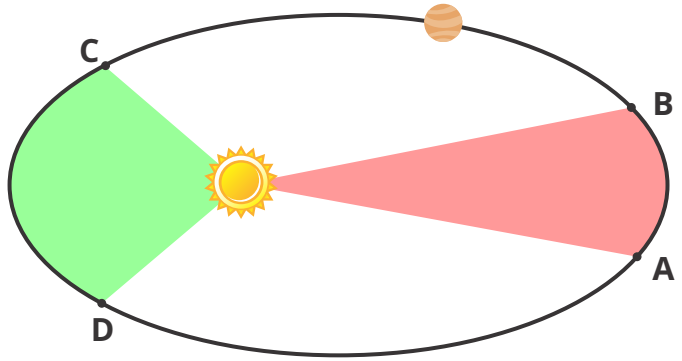


Any object moving in a circle experiences a **centripetal force**. That is, there is some force pushing or pulling the object towards the centre of the circle, the point about which it is rotating.

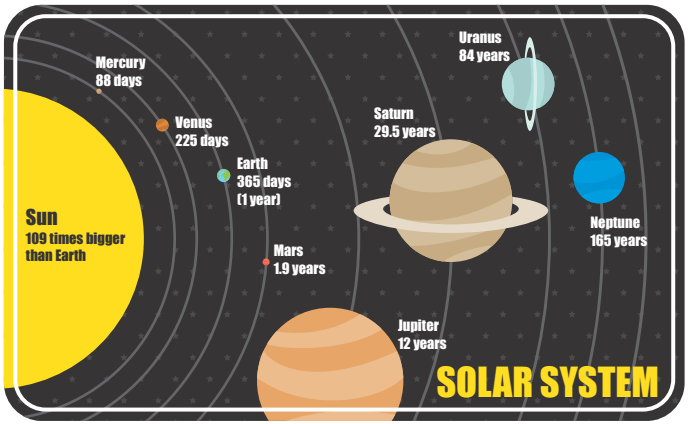
The pendulum is a mechanism found commonly in old wall clocks. It is a great example of circular acceleration and deceleration, even if it makes part of a circle. A chain or rod holds a heavy piece of metal vertical to the ground. The centripetal force causes it to move on a circular path up to a certain point.

Kepler's Laws

The German astronomer and mathematician Johannes Kepler (1571 - 1630) is considered the first modern astrophysicist. His deep interest to understand the way that planets orbit the Sun made him move from Germany to become an assistant astronomer in Denmark. Kepler analysed the recorded observations of planets to discover three of the most fundamental laws in celestial mechanics.



Kepler's 1st Law - The Law of Orbits: *All planets move in elliptical orbits, with the sun at one focus.* An ellipse is a shape that is best described as a squished circle, similar to an oval and planets orbit the sun in that shape (see on the right)!



Kepler's 2nd Law - The Law of Areas: *A line that connects a planet to the sun sweeps out equal areas in equal times***.** Thus, planets orbit faster when they get close to the Sun (C-D) compared to when they are far away (A-B) as it is shown above.

Kepler's 3rd Law - The Law of Periods: *The square of the period of any planet is proportional to the cube of the distance of its orbit*. In other words, the larger the distance between a planet and the Sun, the longer it takes to make a full orbit. Mercury, the closest planet to Sun, makes one orbit in every 88 days. Jupiter which is 13 times further than Mercury makes a full orbit in 12 years!

Quiz

Exercise

a) Read the following statements. Put a ✔ into the correct box to state whether the statement is true or false.

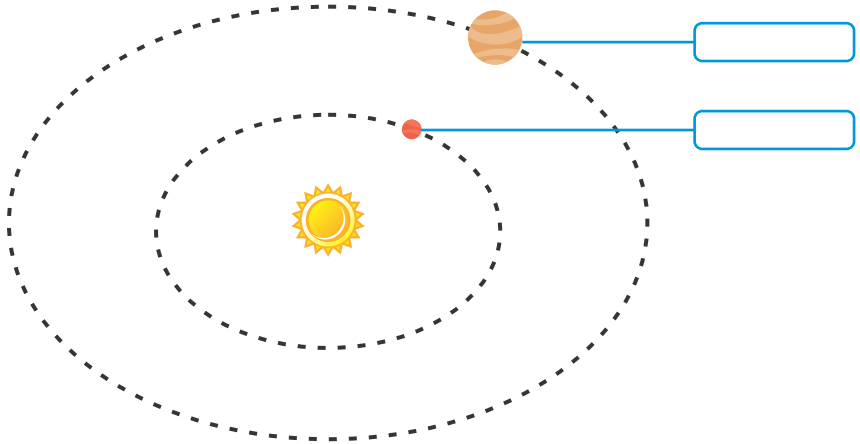
1. The eight planets of our Solar system move in circular orbits around the Sun.

☐ True ☐ False

2. Planets orbit faster when they are far away from the Sun.

☐ True ☐ False

b) Complete the boxes with the words **Jupiter** and **Mars** in order to identify the planets orbiting the Sun.



Knowledge check: check what you have learned.

- ☐ What is **circular motion**?
- ☐ What is **centripetal force**?
- ☐ How does a **pendulum** work?
- ☐ Who is **Kepler**?
- ☐ What do **Kepler's laws** state?

Theory

What we will learn

Mythologies from antiquity are always fascinating for the sagas of superheroes with extraordinary powers. Few mythologies have produced such a wealth of heroes like the Roman mythology. One of those deities was Saturn, who had a central role in many sagas. An experienced fighter, sometimes fierce and always brave! The name Saturn was also given to a planet of our solar system by ancient Romans to honour his greatness. Are you interested in learning who was Saturn? Have you ever wondered how planet Saturn is named after this hero? What is interesting about this planet? Read through the pages of the booklet to gain useful information and amazing facts. Follow the building instructions and build your own Saturn robot. Join the journey to Saturn and test your newly acquired knowledge by answering the quiz which follows.

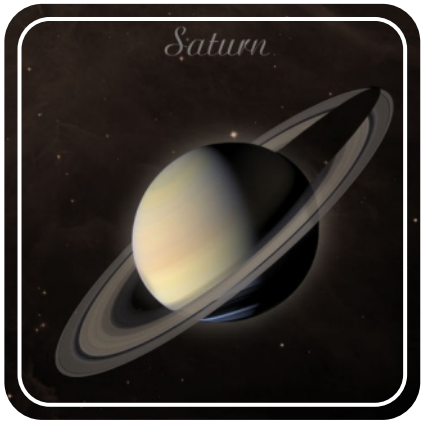
Ancient statue of Saturn in Rome

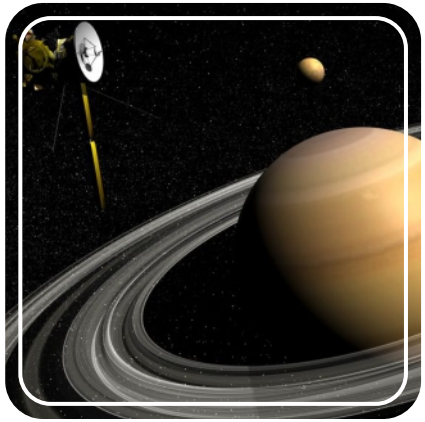
Mythology of Saturn

Cronos was the youngest but yet the most cunning and ambitious son of Uranus. He became the king of Gods after slaying his father. However, he suffered the same fate since his son Zeus took control over the throne after a long fight. He was worshipped as the deity of harvesting, and he also supervised the progress of people. His figure was usually depicted with a crystal sickle, which he used to harvest the crops.

Saturn planet

Ancient Romans studied extensively the five planets which are visible to the naked eye. They named those planets after their mythological heroes. One of those planets is Satrun, the second largest planet of our solar system. The planet is 764 times bigger compared to Earth. There is no ground to stand upon Saturn's surface, since it is made of gases and liquids. For this reason, the planet is mostly referred to as a gas giant planet!



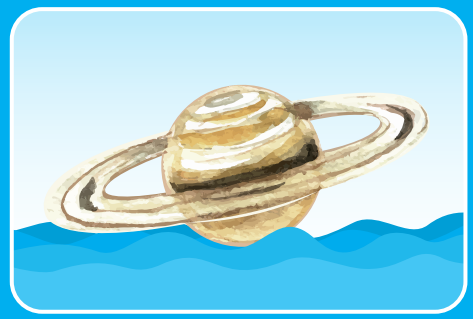


Rings and moons

Saturn is mostly famous for its astonishing rings! A look through a telescope of this golden coloured planet is revealing a thrilling image of its rings. The rings are made of small rocks and ice. Some dark lines which appear on the rings are actually gaps among them. Apart from its beautiful shape, Saturn has also 62 moons! Enceladus is one of them, which was recently found to have a liquid water ocean beneath its rocky surface.

Did you know?

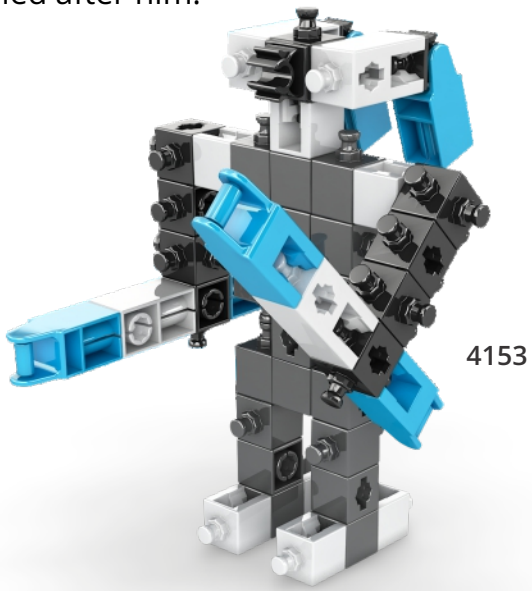
Despite the fact that Saturn is the second heaviest planet of our solar system it can float on water! This is because Saturn is made from gases and liquids which have lower density compared to water. Of course it is impossible to find a pool in which Saturn can fit into. However, if we could do such an experiment we would see the planet floating on water!



Saturn can float on water!

Saturn

The children of Uranus and Terra were called the Titans. Saturn was the most powerful among them. He used his cunning abilities to overthrow his father and rule the Gods. In a battle against his own son Jupiter, known as "*the fight of the titans*", he eventually lost the battle along with the domination. Nonetheless, his legacy was well respected for his braveness and his stiffness. For his honour, the second biggest planet of our solar system was named after him.



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Quiz

Can you distinguish myths from facts about Saturn? Put a ✓ into the correct box to say whether the statement is true or false.

1. Saturn was a real person who lived on high mountains.

☐ True ☐ False

2. Ancient Romans worshipped Saturn during the harvesting period expecting for his help.

☐ True ☐ False

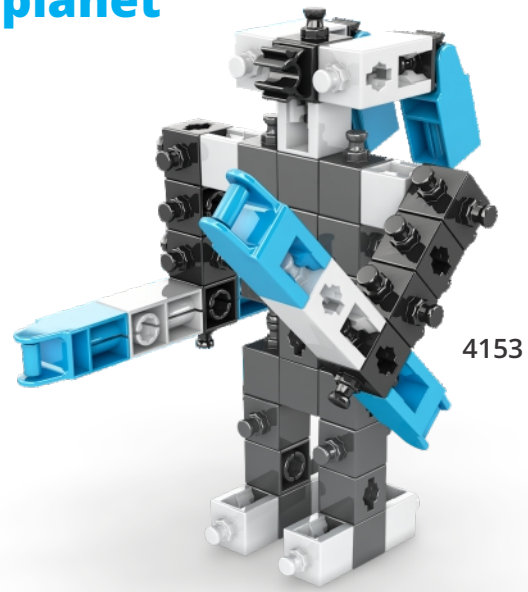
3. The planet which is known today as Saturn is the smallest planet of our solar system.

☐ True ☐ False

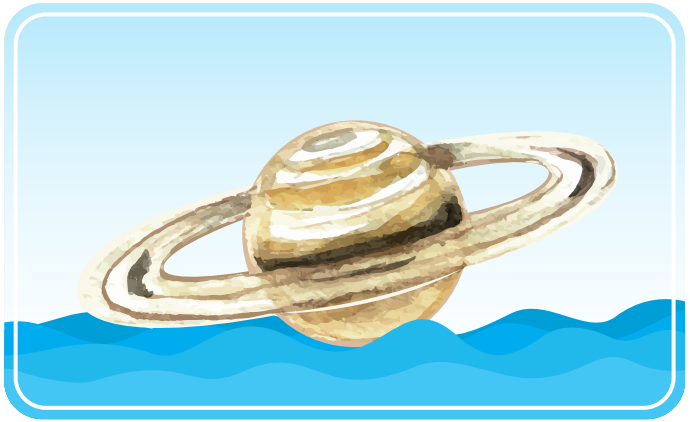
4. The moon of Saturn, known as Enceladus, is surrounded by beautiful rings.

☐ True ☐ False

Experiment with the floating planet



As you have already learned Saturn could float on water! This is because Saturn is made from gases and liquids which have lower density compared to water. Density is a measurement that compares the amount of matter an object has to its volume. Every pure substance has a unique density value. An object with much matter (mass) in a certain volume has high density. Meanwhile, an object with little matter in the same amount of volume has low density. Objects with smaller densities float in liquids with greater densities while objects with greater densities sink in liquids with lower densities.



- Have you ever wondered how a massive ship can travel across the seas, while a little pebble sinks to the bottom?
- Why do same objects float?

Are you ready to discover what buoyant force is and how it determines if an object will float?
Let's perform the next page's experiment to get answers for all these questions!

Learning about: **Buoyancy**

Floating planet

Among the planets of our solar system, Saturn has the smallest density. This is due to the large amount of gases and liquids that the planet is made up. Contact the below experiment to discover when objects float!

Discover:

- Archimedes Principle.
- How does buoyant force determine whether an object will float or sink?

Level Of Difficulty ★★★☆☆

Materials Needed:

- Engino® (ce201mm-a).
- Sink (at least 8cm deep) full of water.
- Small pebbles and a small Plastic bag.

Procedure:

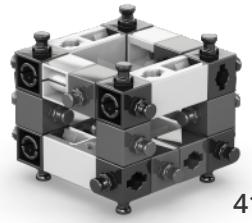
1. Find the instructions and build the **Floating Planet** model.

2. Place your model into the sink. Then answer the questions of **exercises 1** and **2**.

3. Remove the model from the sink and fill it inside with the small Engino® parts as it is shown on the right. Do **exercise 3**.

1. Does your model float or sink? Choose the correct answer by placing a ✓.

☐ Float ☐ Sink



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2. Why do you think this is happening?

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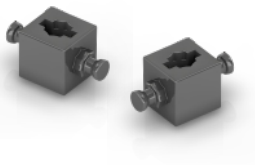
3. Will the model sink or float this time? Put a ✓ to indicate your expectation.

☐ Float ☐ Sink



Place the model onto the water and check what happens!

Procedure:

4. Remove all the additional parts from the interior of your model. This time you will add a few small pebbles (see below). Repeat the experiment to check whether it will float or not. Answer the question of **exercise 4**.

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5. Take your model out of the sink and wrap it with a plastic bag. You can use the one found in the box, in which the plastic parts were packed! Make sure to seal it with an adhesive tape, to prevent water float inside. Place it back to the sink and see what happens! Do **exercises 5** and **6**.

4. What do you observe with the pebbles inside? If planet Saturn was made of solid rocks too, what do you think would happen to its overall density?

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5. Which factor has significantly changed compared to the previous experiment?

☐ Mass ☐ Density ☐ Both of them

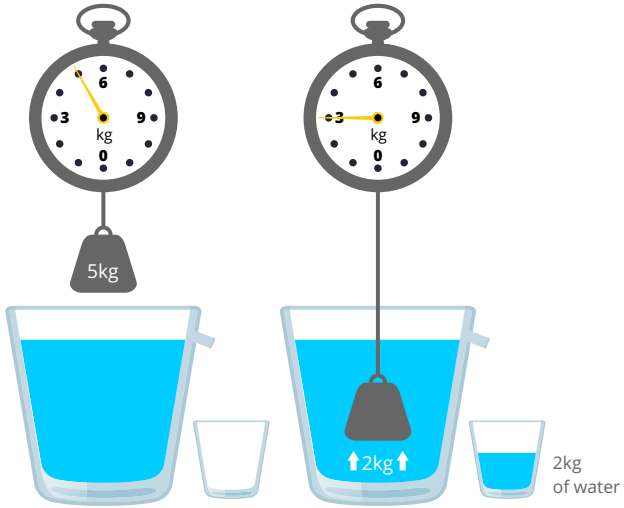
6. There are 4 different materials involved in this experiment. These are **plastic, water, rock** and **air**. Can you place them in descending order according to their density?

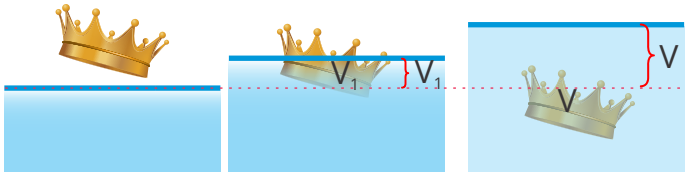
	Name of Material
1	
2	
3	
4	

Theory

Archimedes Principle

One of the most famous scientists from antiquity is **Archimedes**. During his bath, he noticed that the level of water in his bathtub was raising while he was sinking into it. Indeed, the more of his body was sunk into water, the higher the level would rise. He came to the conclusion that **the volume of the displaced water, is equal to the volume of body which is sunk into it.** With further experimentation, Archimedes realised that objects weigh less when sunk into water! He understood that there must be a force that works in opposition to weight.

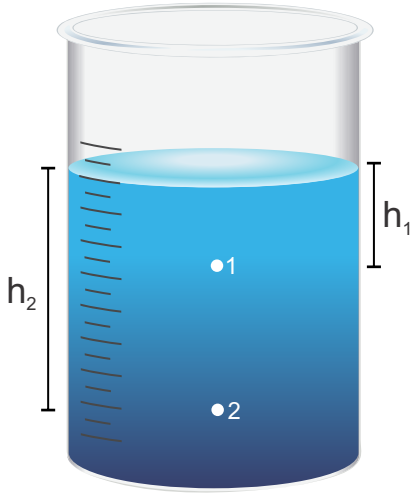


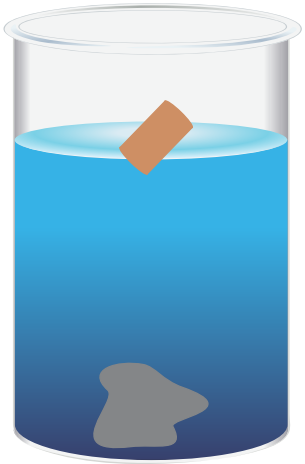


Archimedes stated that ***"any object, wholly or partially immersed in a fluid, is buoyed up by a force equal to the weight of the fluid displaced by the object."*** This is known as the **Archimedes Principle.** This is a fundamental principle of physics which explains why some objects can float, instead of sinking! Due to his cleverness, a king asked him to determine whether his crown was purely made of gold. To solve the puzzle, Archimedes borrowed pure gold, of the same weight, from a different goldsmith. The two had the same weight when measured outside of water. However, the two bodies weighed different into water! The crown proved to be impure!

Hydrostatic Pressure and Buoyant Force

Fluids can exert pressure just because the piled-up layers are pushing the layers beneath them. Therefore, the amount of pressure that fluids can exert due to their weight (the force that pulls any object down to Earth) is called **hydrostatic pressure**. The hydrostatic pressure depends on the depth, since deeper layers feel more weight. Also, denser fluids produce stronger pressure as more mass is condensed into the same volume. Although Archimedes discovered the buoyant force he could not truly explain how this force was generated. Buoyancy can be explained by understanding hydrostatic pressure. In fact, buoyancy is generated due to the difference of hydrostatic pressure between two points.



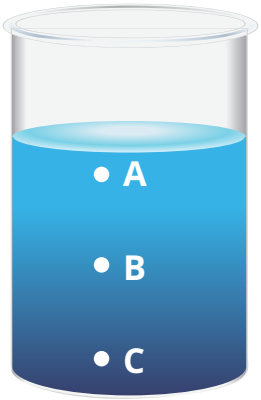


When an object is partially immersed into a fluid, its bottom area is subjected to hydrostatic pressure. Thus it feels an upwards push. The value of the Buoyant force determines whether the object will float or sink. If the force of buoyancy is larger than the weight of the object, then the object will **float!** Contrary, if the buoyancy is smaller than the weight of the object, it will **sink!** For instance, a cork floats while a pebble sinks if placed in a cup of water. The value of the buoyant force depends on the density of the liquid and the displaced volume of the liquid. The greater the density of the liquid the greater the buoyant force. Likewise, the greater the displaced volume the greater the buoyant force.

Quiz

Exercise

a) Which one of the 3 points has the more hydrostatic pressure? Explain your answer.



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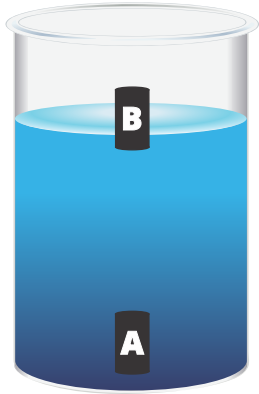
b) Complete the gaps of the following sentences with the words **greater** and **lower**.



The buoyant force acting on object A is ..... than its weight. Meanwhile the buoyant force acting on object B is ..... than its weight.

Knowledge check: check what you have learned.

- [ ] What does **Archimedes principle** state?
- [ ] What is **hydrostatic pressure**?
- [ ] What is **buoyant force**?
- [ ] How does **buoyant force** determine whether an object will **float** or **sink**?
- [ ] Which **factors** affect **buoyant force**?

Theory

What we will learn

A safari is a journey, embarked upon by a group of people who wish to observe animals in their natural environment. It's an amazing opportunity for photographers to capture unique moments of some of the world's most rare animals. Do you know the types of safari? Are you familiar with any safari destinations? Do you know the Big Five animals? What is the difference between zoos and safari?

The booklet of "***Safari***" contains a great deal of useful information and amazing facts, so that you will learn all about safaris. Read through the pages of this booklet to discover a significant information for safari animals. Follow the building instructions contained in this booklet to build exciting models such as **an elephant**, **a gorilla** and **steppe eagle**. Join this journey to safari parks and test your newly acquired knowledge.

The History of Safari

The word 'safari' was introduced in the English language in the 19th century. The word means 'long journey' in Swahili, an African language. Safaries were originally used to describe the activity of hunting big animals. Documented hunts of a famous hunter, called William, demonstrate the great adventures of the African wilderness.

This gave rise to the familiar imagery we associate with the word "safari" today. East African hunting safaris became a fashionable pursuit among members of the privileged classes in Europe and America. Thankfully, the modern safari is far from what it used to be before. Under the threat of animal extinction and destroying their natural environment, the international community set rules and conditions for safaries.

Safaris today are for admiring wildlife and birds in the wild, along with a host of other adventures. Tourists participate in wildlife viewing of the savanna, forests and river with cameras. Safaris have largely developed into holiday trips that actually benefit the wildlife of Africa, by supporting local conservation efforts and wildlife sanctuaries. The modern safari is also a socially responsible journey designed to interact ethically with local communities and have a positive impact on local economies.

Types of Safaris

Guided Safaris

The most popular type of safari prevails in most parts of Africa. This type of safari begins in the early morning or late afternoon and is perfect for new travellers, as the driver is very significant because he has a big variety of knowledge of the parks and animals. It is very important if it is your first time in safari.

Walking Safaris

If someone likes adventure and is willing to try new adventures to walk for hours, it is a perfect choice. Many walking safaris give you the chance to see a few animals. But, there is always a possibility of coming across a herd of elephants or a group of beautiful gazelles .

Did you know?

The most desirable season for safari is when dry conditions occur. In general, the climate where safari parks exist is better between the months of May, June, July and August. During this time, the temperature is milder while the nights are cooler. Hence, animals are easy to find as they move around enjoying the good conditions. It is easy to see and record videos of animals when touring inside a vehicle!

Summer is the best season for a safari tour

Air Safaris

If someone wants to observe birds, this choice of air safari is unique. An air safari includes a ride on a hot air balloon. This experience enables you to witness, enchanting various landscapes that would not otherwise be conceivable from the ground. Hot air balloon safaris typically leave just before sunrise (as the day heats up thermals and wind generally gets stronger) and the actual flight lasts between 45 minutes to 1 hour.

Safari Destinations

Chobe National Park

Chobe National Park in the northwest region of Botswana is renowned for its high density of elephants. Besides big and small elephants Chobe is also home to all members of the Big 5, along with huge pods of hippo, crocodiles, kudu, lechwe, wild dogs, as well as over 450 species of birds. Chobe National Park is a place that shouldn't be missed.

South Luangwa National Park

The concentration of wildlife that lives around the Luangwa River is one of the highest in Africa. Pods of hippos number in hundreds. There are lions, leopards, elephants, African wild dogs, unique species of zebras and giraffes, as well as over 400 species of birds. The South Luangwa National Park is a wild and beautiful place which is worth a visit.

Kruger Park

Kruger Park is South Africa's most exciting African safari destination. It is filled with legends and history. Going to this park is one of the best journeys of exploration to find Africa's Big Five and discover unique wildlife.

Did you know?

The term “Big Five” originally referred to the difficulty in hunting the lion, leopard, rhino, elephant and African buffalo. These five large African mammal species were known to be dangerous and it was considered a feat by trophy hunters to bring them home. Nowadays the term “Big Five” is frequently used in the African safari industry, where sightings, encounters and photo opportunities are exciting.

The “Big Five” animals

Differences between Zoos and Safari

Zoo

A zoo is a park or area where many different animals live. Wild and rare animals are hosted in zoos so that people can have a look at them. The zoo is a facility in which animals are housed within enclosures, however maintaining their natural environment.

Zoos are usually profitable businesses and have animals from all over the world confined in a building or cage or behind a fence. People move from exhibit to exhibit. You usually walk but may ride on small trains or other types of rides. There is a sign telling you about the species behind the glass panel or fence.

Safari

The Safari is a journey for exploration of wild animals or a trip to see and observe wild animals. People come from all over the globe to see endemic animals, birds, elephants, lions, leopards, hippos, crocodiles and others in their natural habitats.

Safaris are part of the government and the animals live freely and are not housed in a building or behind a fence. Going to safaris is free and people can freely see the animals up close, observe them to take photos as long as they do not disturb them. Animals are very friendly when there is no harmful purpose from people.

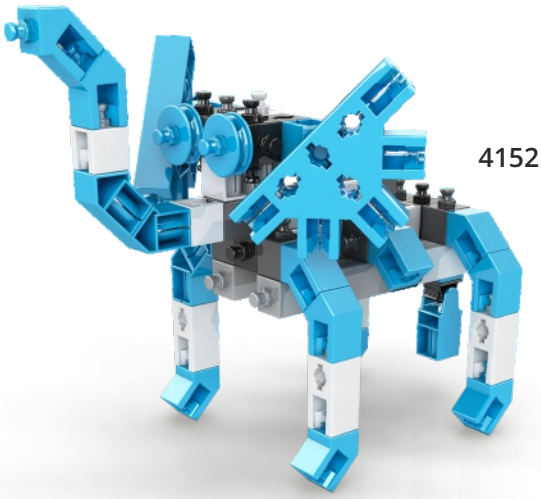
Clothes for safari

The way to get close to the wildlife is to blend in with your surroundings as much as possible by going neutral. The best safari color is khaki so as not to attract unnecessary attention. Light-weight fabrics minimise noise when walking. Combat trousers are perfect with plenty of pockets to store your camera, sunscreen and binoculars. Hats are a fantastic way to protect your head and face from the sun in an open-top safari vehicle.

Models

Elephant

The elephant is the largest land mammal. The biggest can be up to 7.5m long, 3.3m high at the shoulder and 8 tonnes in weight. Despite their massive size, elephants are herbivores and may spend up to 16 hours a day just eating. There are two main types of elephants: the African elephant and the Indian (or Asian) elephant.



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African Elephant

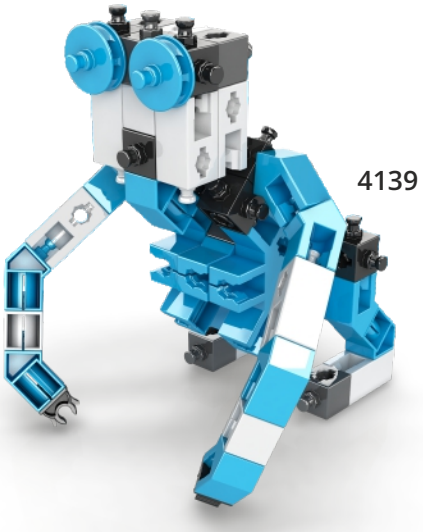
They have large ears that are shaped like the continent of Africa, their skin is very wrinkly, their back is swayed. They have three toes on the hind foot and five on the forefoot.

Indian (or Asian) Elephant

They have smaller ears, they only have one "finger" at the ends of their trunk and their back is dome-shaped. They have four toes on the hind foot and five on the forefoot.

Gorillas

Gorillas are some of the most powerful and striking animals, not only for their size and force, but also for their gentle human like behavior. Gorillas play a significant role in biodiversity by helping areas to spread the seeds of the fruit consumed. They have chests and shoulders, large hands, and forearms that are much shorter than the upper arm. Their face is black and hairless with small eyes that are close together and large nostrils.



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Gorillas live in groups of 6-12 with the oldest and largest silverback leading a family of females, their young and younger males called black backs. The silverback makes the decisions on when his group wakes up, eats, moves and rests for the night. However, because he must protect his family at all times, the silverback tends to be the most aggressive. At night, each gorilla constructs a 'nest' of leaves and plant material in which it will sleep.

Steppe Eagle

As the name already says the Steppe Eagle is a bird of open habitat like steppes and desert. The Steppe Eagle is a large and beautiful bird of prey, belonging to the Aquila or Eagle family. They are fast for their size, reaching flying speeds of up to 37 mph and incredible speeds of up to 186 mph when diving.

Their plumage is mostly dark brown color with light barring on the flight and tail feathers. There is a patch of reddish- brown on the nape of the neck. The nostrils are oval in shape and the steppe eagle is the only species in Aquila. The beak is yellow with a dark tip. They eat a range of prey such as mammals, birds, reptiles and insects. They are known to fly above or below another bird until it's forced to drop its prey. In such a way eagles can also steal food form other birds!

Did you know?

Eagles have been recognized as symbols of power, courage, freedom and immortality since ancient times. However, the eagle is symbolic of the importance of honesty and truthful principles. In some religions, high-soaring eagles are believed to touch the face of God. Legend holds that Mexico's Aztecs so revered the birds that they built Tenochtitlan, their capital, at the spot where an eagle perched on a cactus to devour a snake.

Eagles are used as symbolism

Quiz

Can you discover the following words inside the box? Search horizontal, vertical and diagonal to find them!

SAFARI, ELEPHANT, GORILLAS, EAGLE, BIG FIVE, ANIMALS

N	E	S	U	D	K	T	I	U	A
A	W	A	I	O	E	G	L	O	L
N	Q	F	G	F	J	O	C	M	H
I	P	A	N	L	K	R	B	P	E
M	B	R	L	A	E	I	G	D	J
A	B	I	Y	P	W	L	H	A	K
L	D	T	D	U	Y	L	S	R	O
S	E	L	E	P	H	A	N	T	X
Z	C	Q	G	A	U	S	I	V	M
V	R	B	I	G	F	I	V	E	C