
START
brain
risk
action
GO BACK TO START !!!
FINISH
LIGHT'S JOURNEY
The sizes and distances are not to scale.

2
CORE
It is the hottest part of the Sun with a temperature of about 15 million Celsius degrees.
CORE 1/4

2
CORE
Nuclear reactions occur here creating light.
CORE 2/4

2
CORE
The pressure is extremely high, 340 billion times the air pressure on the surface of the Earth.
CORE 3/4

2
CORE
Hydrogen atoms are fused into helium nuclei at a rate of about 600 million tons per second.
CORE 4/4

2
RADIATIVE ZONE
Energy travels in the form of radiation.
RADIATIVE ZONE 1/4

2
RADIATIVE ZONE
Light takes about a million years to get out of this zone.
RADIATIVE ZONE 2/4

2
RADIATIVE ZONE
Gases keep absorbing and emitting the light rays.
RADIATIVE ZONE 3/4

2
RADIATIVE ZONE
Energy travels in the form of electromagnetic radiation known as photons.
RADIATIVE ZONE 4/4

2
CONVECTIVE ZONE
Energy is carried by convection cells.
CONVECTIVE ZONE 1/4

2
CONVECTIVE ZONE
Hot gases are less dense and rise, cold gases are denser and sink.
CONVECTIVE ZONE 2/4

2
CONVECTIVE ZONE
Gas at the bottom of the zone is heated from below.
CONVECTIVE ZONE 3/4

2
CONVECTIVE ZONE
The convection columns form an imprint on the surface of Sun called solar granulation.
CONVECTIVE ZONE 4/4

2
SUNSPOTS
These look darker than the rest of the sun because they are slightly cooler than the rest of the sun's surface.
SUNSPOTS 1/4

2
SUNSPOTS
Their number goes up and down in a cycle with an average period of about 11 years.
SUNSPOTS 2/4

2
SUNSPOTS
The dark part is the umbra and the lighter one is the penumbra.
SUNSPOTS 3/4

2
SUNSPOTS
Up to 3 Earths could fit inside one.
SUNSPOTS 4/4

2
PROMINENCES
These are the bumps around the edge of the sun but we can only see them through special telescopes. However, never look at the sun through a telescope without supervision.
PROMINENCES 1/4

2
PROMINENCES
These columns of gas are suspended above the Sun's surface by magnetic field loops.
PROMINENCES 2/4

2
PROMINENCES
These may persist for days or even weeks.
PROMINENCES 3/4

2
PROMINENCES
Sometimes they get away from the Sun's surface. When this happens, they are called flares.
PROMINENCES 4/4

2
MERCURY
The light from the Sun takes 3,2 minutes to reach this planet.
MERCURY 1/4

2
MERCURY
This planet has a very thin temporary atmosphere because of the size.
MERCURY 2/4

2
MERCURY
A year on this planet lasts 88 Earth days.
MERCURY 3/4

2
MERCURY
A day on this planet lasts 58.7 Earth days.
MERCURY 4/4

2

VENUS

The light from the Sun takes 6 minutes to reach this planet.

VENUS 1/4

2

VENUS

It is the hottest planet in the Solar System.

VENUS 2/4

2

VENUS

A day on this planet lasts 243 Earth days.

VENUS 3/4

2

VENUS

A year on this planet lasts 224,7 Earth days.

VENUS 4/4

2

EARTH

The light from the Sun takes 8,3 minutes to reach this planet.

EARTH 1/4

2

EARTH

The sky on this planet is blue because the light scatters in the atmosphere.

EARTH 2/4

2

EARTH

A day on this planet lasts 23,93 Earth hours.

EARTH 3/4

2

EARTH

A year on this planet lasts 365,26 Earth days.

EARTH 4/4

2

MARS

The light from the Sun takes 12,7 minutes to reach this planet.

MARS 1/4

2

MARS

A day on this planet lasts 24,63 Earth hours.

MARS 2/4

2

MARS

A year on this planet lasts 687 Earth days.

MARS 3/4

2

MARS

The atmosphere of this planet is mostly carbon dioxide, and it appears pink because fine particles of iron oxide dust are suspended in it.

MARS 4/4

2

JUPITER

The light from the Sun takes 43,3 minutes to reach this planet.

JUPITER 1/4

2

JUPITER

A day on this planet lasts 9.93 Earth hours.

JUPITER 2/4

2

JUPITER

A year on this planet lasts 11.86 Earth years.

JUPITER 3/4

2

JUPITER

There is a giant and ancient storm on this planet, which is bigger than the Earth and has lasted more than 300 years.

JUPITER 4/4

2

SATURN

The light from the Sun takes 1 hour and 30 minutes to reach this planet.

SATURN 1/4

2

SATURN

A day on this planet lasts 10,66 Earth hours.

SATURN 2/4

2

SATURN

A year on this planet lasts 29,46 Earth years.

SATURN 3/4

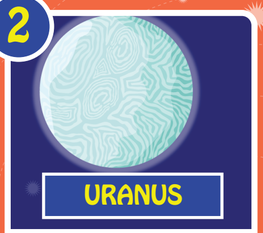
2

SATURN

The rings of this planet are the most extensive, massive and spectacular in the Solar System. They are made up of separate chunks of dirty water ice.

SATURN 4/4

2

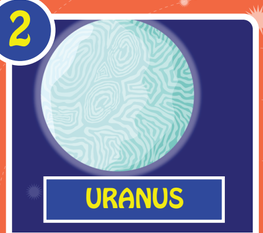


URANUS

The light from the Sun takes 2 hours and 6 minutes to reach this planet.

URANUS 1/4

2

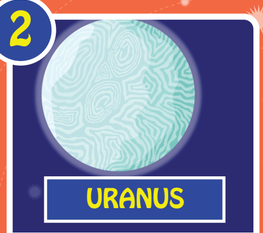


URANUS

A day on this planet lasts 17,24 Earth hours.

URANUS 2/4

2

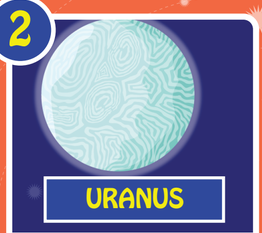


URANUS

A year on this planet lasts 84 Earth years.

URANUS 3/4

2



URANUS

The blue color is a result of the sunlight and the methane-ice clouds within the planet's cold atmosphere.

URANUS 4/4

2

NEPTUNE

The light from the Sun takes 4 hours and 16 minutes to reach this planet.

NEPTUNE 1/4

2

NEPTUNE

A day on this planet lasts 16,11 Earth hours.

NEPTUNE 2/4

2

NEPTUNE

A year on this planet lasts 164,9 Earth years.

NEPTUNE 3/4

2

NEPTUNE

This planet is the windiest planet in the Solar System with winds that may reach a staggering 1,340 kph.

NEPTUNE 4/4

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Universe Awareness International Office | Leiden Observatory | J.H. Oort Building | Niels Bohrweg 2 NL-2333 CA Leiden, The Netherlands
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LIGHT'S JOURNEY

Instruction Book

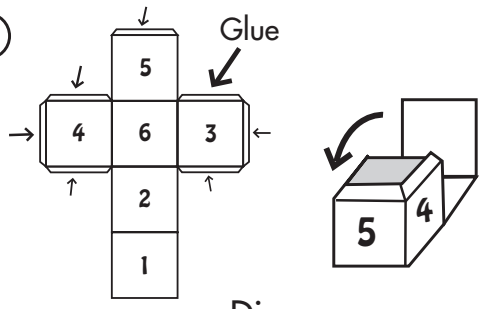
How to play this game

Prepare the components to play the game

①

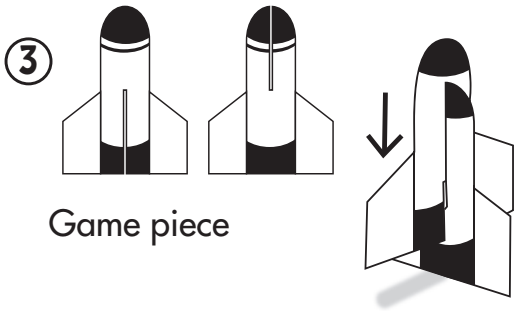
Main board

②



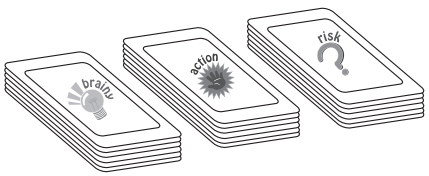
Die

③



Game piece

④

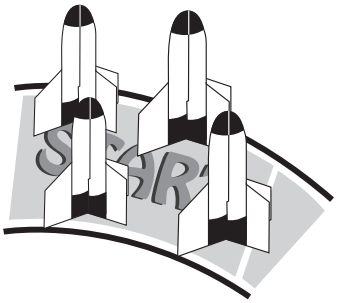


Brainy cards, Action cards, and Risk cards in three different decks

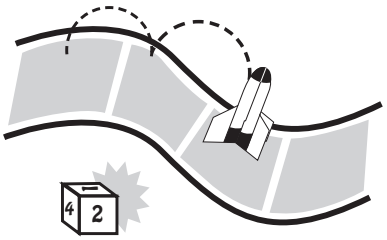
⑤ You also need to prepare the following items:

1. A few sheet of paper
2. A pencil/ a pen
3. A desk lamp
4. Cloth to make thick gloves
5. A transparent glass filled with water
6. A flashlight
7. A shallow bowl filled with water
8. A small mirror

① To start the game all players place their pieces on the start box. All players take it in turn to throw the die. The player with the highest throw starts first.



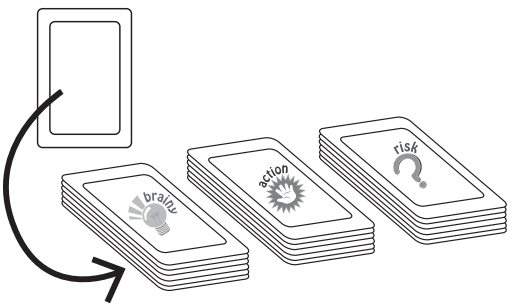
② This player throws the die and moves their piece forward by the number of boxes indicated by the die. After the player has completed their turn, the turn passes to the right.

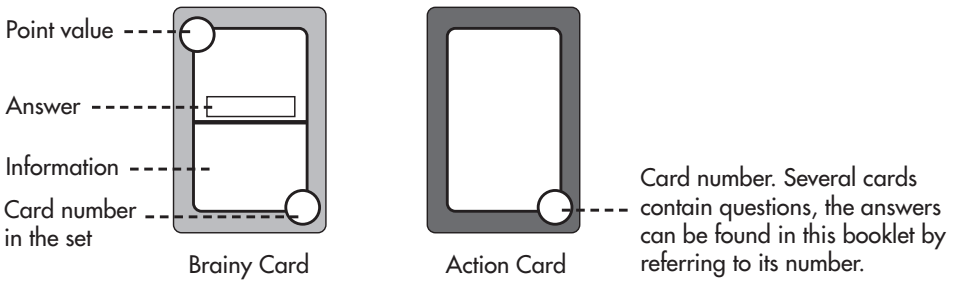


③ Depending on the type of box on which your piece lands, the player must follow certain instructions.

④ The aim is not to be the first to finish, but to earn the most points.

⑤ The cards are divided into 3 decks: Brainy card deck, Risk card deck, and Action card deck. Each deck needs to be well shuffled. Each used card should be returned to the bottom of each deck.

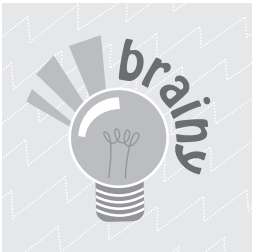




The boxes

① 

Start of the game. All players place their pieces on this box to start the game.

② 

1. Player takes a Brainy card from the Brainy card deck.
2. Player reads the information on the card out loud for everyone to hear.
3. Player then keeps the card until required to do something with it .
4. Players need to try to collect all 4 cards in a set to gain extra 3 points for that set.

③ 

1. Player takes a Risk card from the Risk card deck.
2. Player reads the risk card out loud for other players to hear.
3. Player must then obey the instructions written on the card.
4. After each card is used, it should be placed at the bottom of the risk card deck.
5. In the event that all risk cards have been used but the game is not over, the discarded risk cards can be returned to the risk card deck after being shuffled.

④ 

1. Player takes an action card from the action card deck.
2. Player reads the instructions on the action card out loud for other players to hear.
3. Player must then perform the required action, with the assistance of the other players if needed, to gain an extra point.
4. Player keeps the action card if the action has been successfully performed. If not, the action card should be returned to the bottom of the action card deck.

⑤ 

1. Player asks the player on their right to pick one random info card from his/her own deck with the cards facing down.
2. The player who has taken the card reads out the information on the card.
3. The player whose card has been taken must give the correct answer to reclaim their card.
4. If the answer is incorrect, the other players can attempt to provide the answer. Whoever answers correctly, can keep the card.
5. If no one answers correctly, the player who has taken the card can keep it.

Player skips their next turn.

⑥

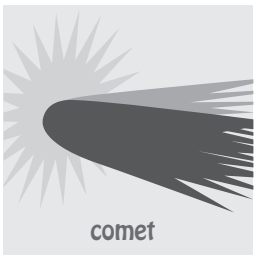
Player goes back 10 boxes from their current position.

⑦

Player moves forward 5 boxes from their current position.

⑧

Player gets hit by a comet and should go back 8 boxes from their current position and loses 2 Brainy cards. The cards go back to the Brainy card deck, and placed at the bottom of the deck.



⑨

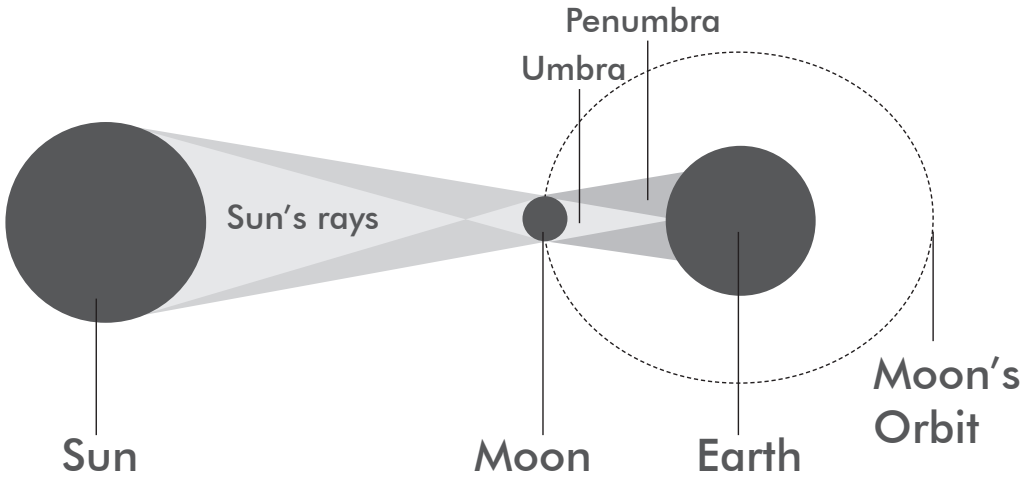
End of the game. When the first player reaches this box, the game is finished and all players stop playing and count their points. The first player who reaches the finish box gets an extra 2 points. The player with the most points wins the game.

⑩

Answers to the questions found in Action Cards

Card number

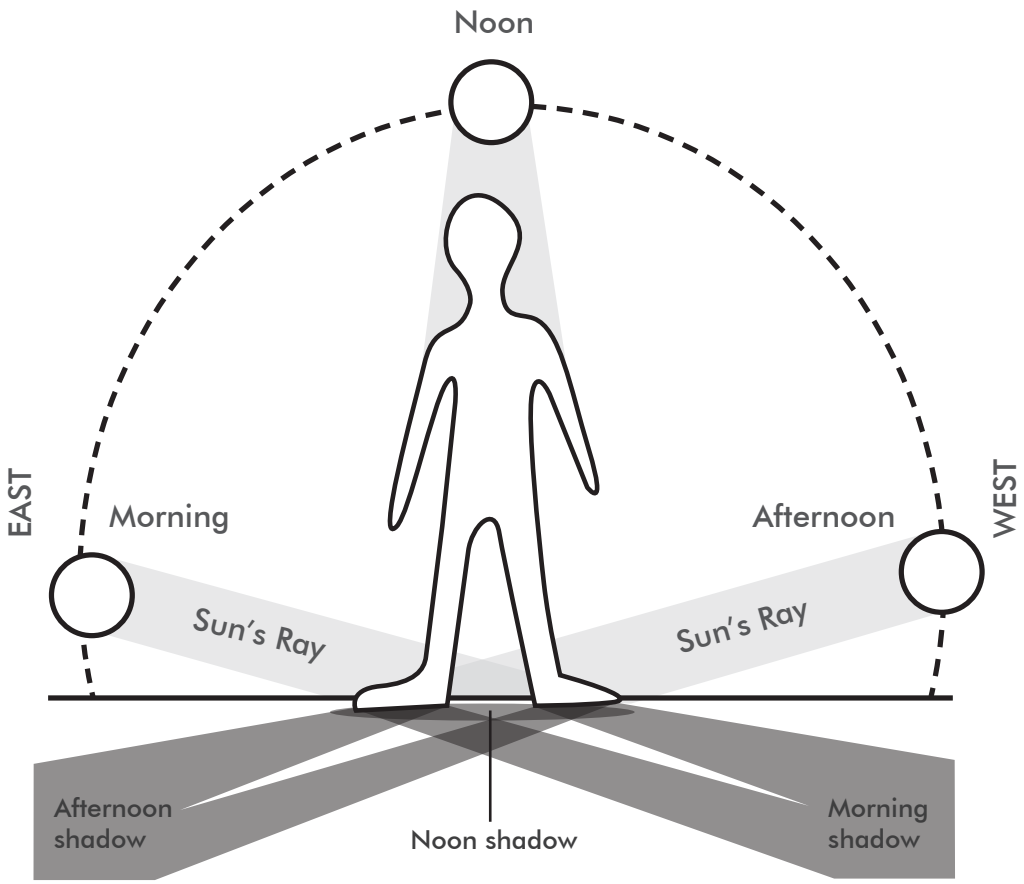
17



As seen from the Earth, a Solar eclipse occurs when the Moon passes between the Sun and Earth, and the Moon fully or partially blocks the Sun.

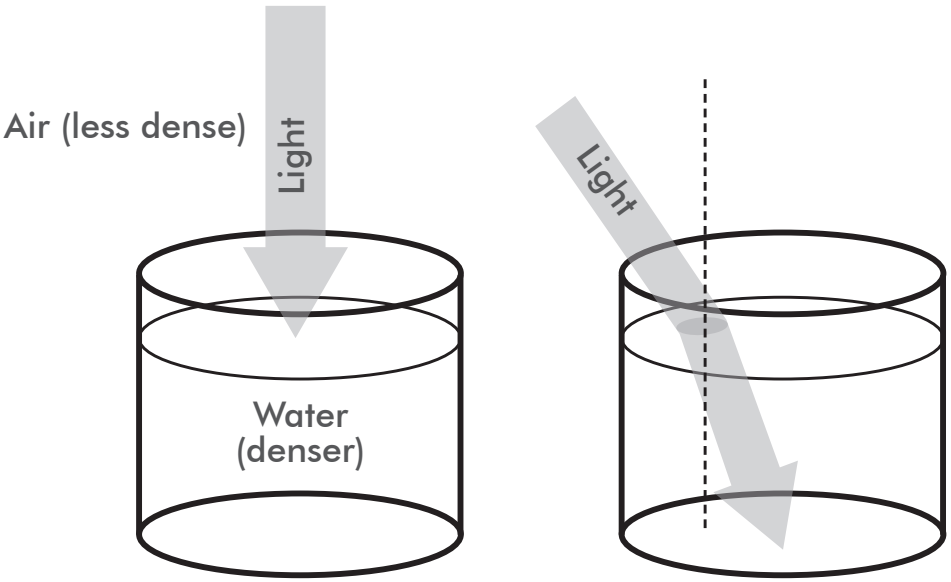
Card number

18



Card number

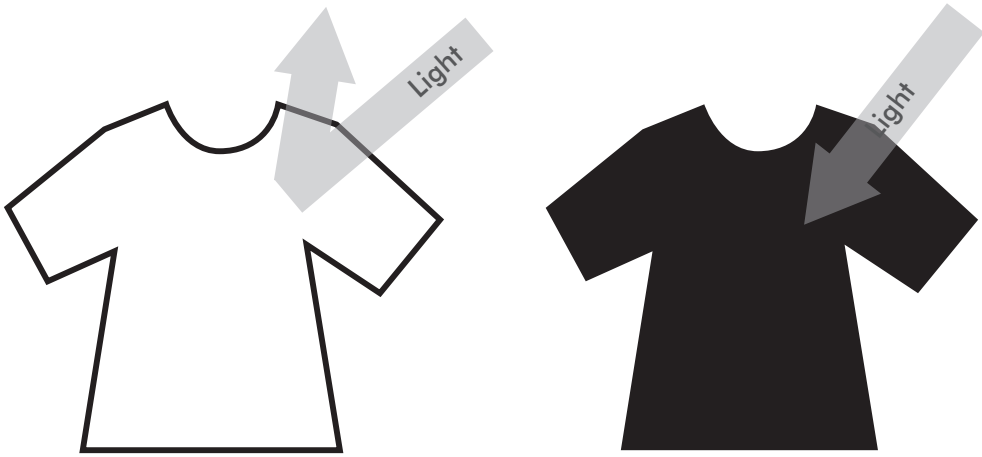
19



When light passes from a less dense to a denser substance, (for example from air to water), the light is refracted (or bent) towards the normal.

Card number

20



Because black color receives the light and does not reflect rays as white color does.

Planets of our Solar System in the correct order:

1. Sun
2. Mercury
3. Venus
4. Earth
5. Mars
6. Jupiter
7. Saturn
8. Uranus
9. Neptune

Planets and their correct characteristic:

Mars	Red
Earth	Blue
Mercury	Smallest
Venus	Hottest
Saturn	Rings
Jupiter	Biggest
Uranus	Coldest
Neptune	Windiest

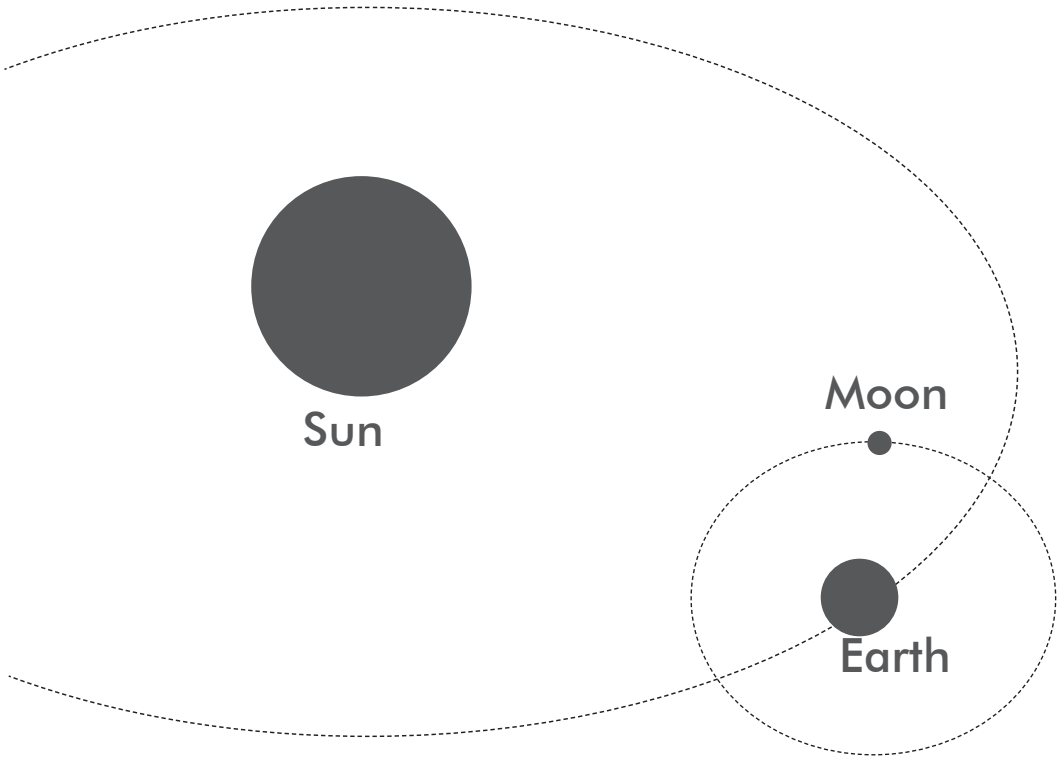
Colors of the rainbow are as the following:
Red
Orange
Yellow
Blue
Green
Indigo
Violet

The time each planet takes to circle the Sun:

Mercury	88 days
Venus	224.7 days
Earth	365.2 days
Mars	687 days
Jupiter	4332
Saturn	10760 days
Neptune	30700 days
Uranus	60200 days

Card number

25



The Moon orbits the Earth, and the Earth orbits the Sun.

Inner/ Rocky planets are:
Mercury
Venus
Earth
Mars

Outer/Gaseous planets are:
Jupiter
Saturn
Uranus
Neptune

An EU Universe Awareness Product

Funded by SPIE, the international society for optics and photonics and European Community's Seventh Framework Programme ([FP7/2007-2013]) under grant agreement n° 263325

Developed by Angela Pérez, Stephanie Finnvik, Maya Barlev, Muryani, Sarah Reed, Wouter Schrier and Pedro Russo.

Illustrations and design by Muryani.

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