



3rd
Basic

4th
Advanced

Helping With Math

USA
GRADES

Equilateral Triangles

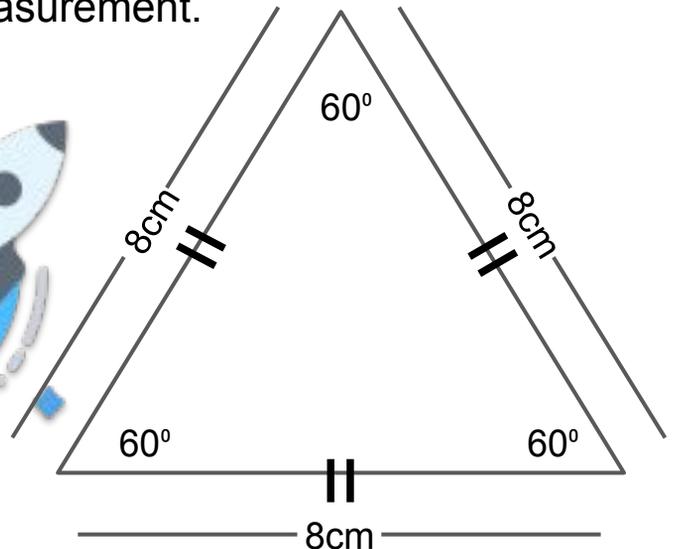
Suitable for students
aged 7-9



This pack is suitable for learners aged 7-9 years old or 3rd to 4th graders (USA). The content covers fact files and relevant basic and advanced activities involving equilateral triangles.

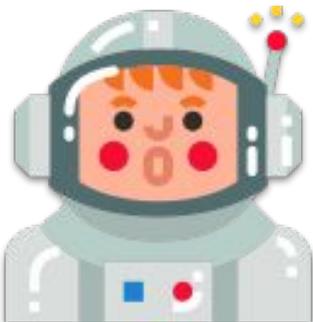


An **equilateral triangle** is a triangle in which all three sides and all three angles are of equal measurement.



REMEMBER!

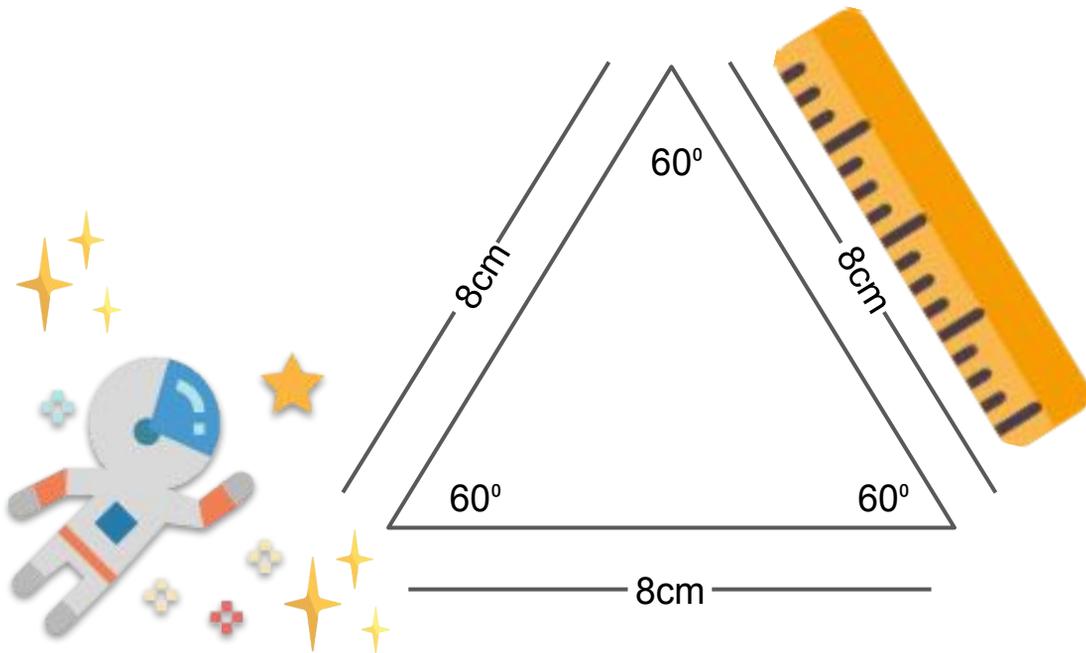
- When you add all three angles of a triangle, the sum is always 180° .
- If we divide 180° by 3, each angle will equally measure 60° . Therefore, all angles of an equilateral triangle will always measure 60° .
- As all angles of an equilateral triangle are less than 90° , it is also classified as a type of acute triangle.



MEASURING EQUILATERAL TRIANGLES

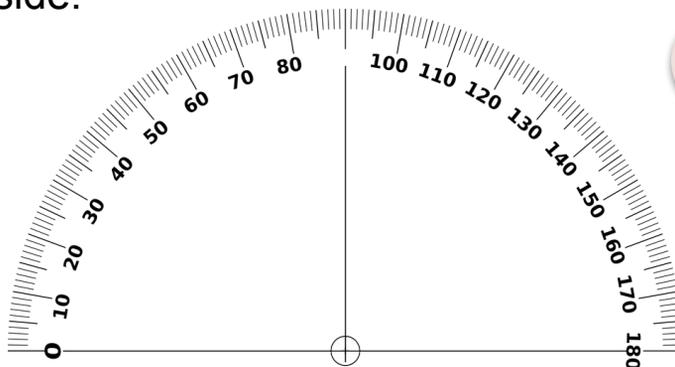
An equilateral triangle is defined by having all sides with equal measurements and all angles measuring the same 60° .

We can simply find out if a triangle is equilateral by measuring all sides of the triangle using a ruler. If all sides have the same measurements, then it is an equilateral triangle.



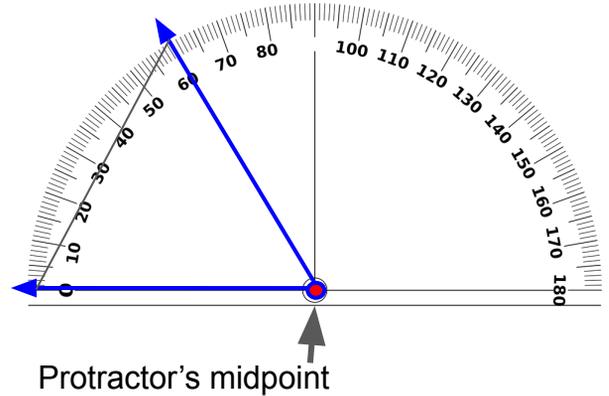
Otherwise, we could also use a **protractor**, which is a tool that we can use to measure angles.

It is usually a flat semicircular form with the angle degrees marked on the curved side.

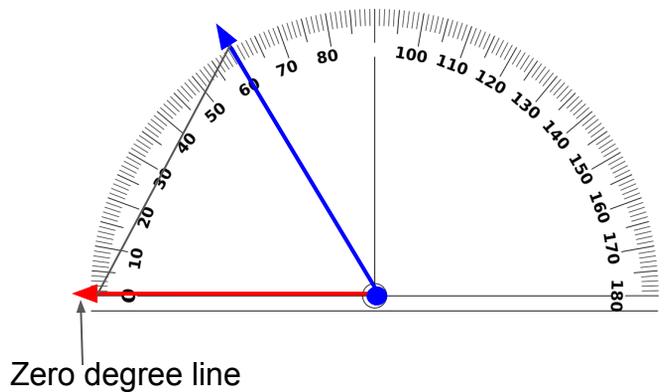


USING A PROTRACTOR

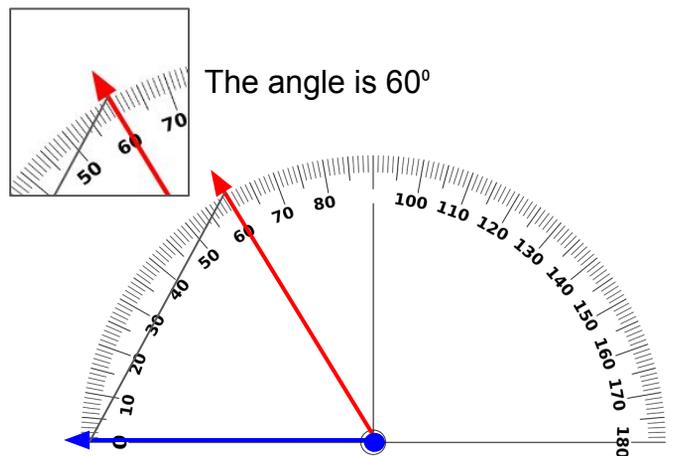
1. Position the protractor so that the vertex of the angle you are measuring is aligned with the protractor's midpoint.



2. Make sure that one side of the angle is lined up with the zero degree line of the protractor



3. Once the angle and protractor are properly positioned, check the other side of the angle that touches the measuring scale and count the degree lines.



If all angles have the same measurements, then it is an equilateral triangle. Alternatively, if two angles are measured 60° , then we can already assume that the third angle is 60° as the sum of all triangle angles always sum up to 180° .

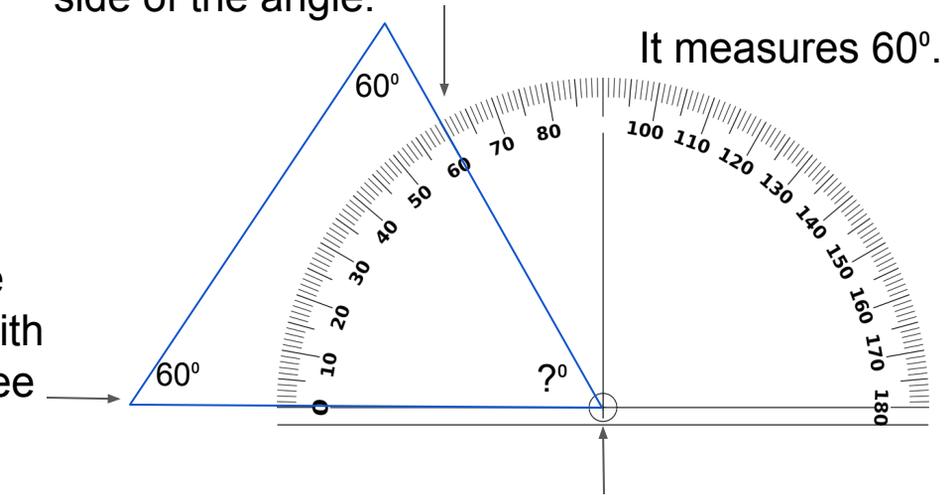


MEASURING EQUILATERAL TRIANGLES

Example:

- c. Check the degree measurement of the other side of the angle.

- b. One angle lined up with zero degree line

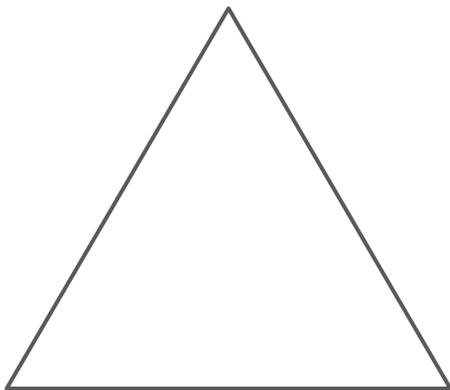


- a. Angle vertex aligned with protractor's midpoint

This is a triangle with all angles measuring 60° .
Therefore, this is an equilateral acute triangle.

MEASURING EQUILATERAL TRIANGLES EXERCISES

Try measuring the sides and degrees of these triangles. Note down if these are equilateral triangles or not.



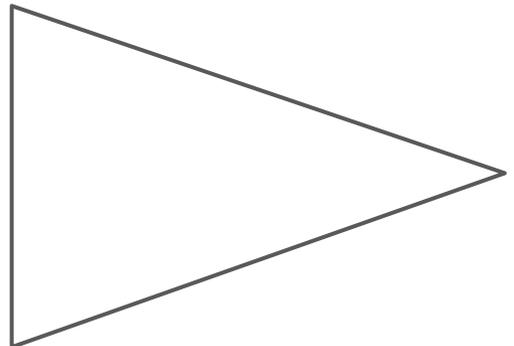




TABLE OF ACTIVITIES

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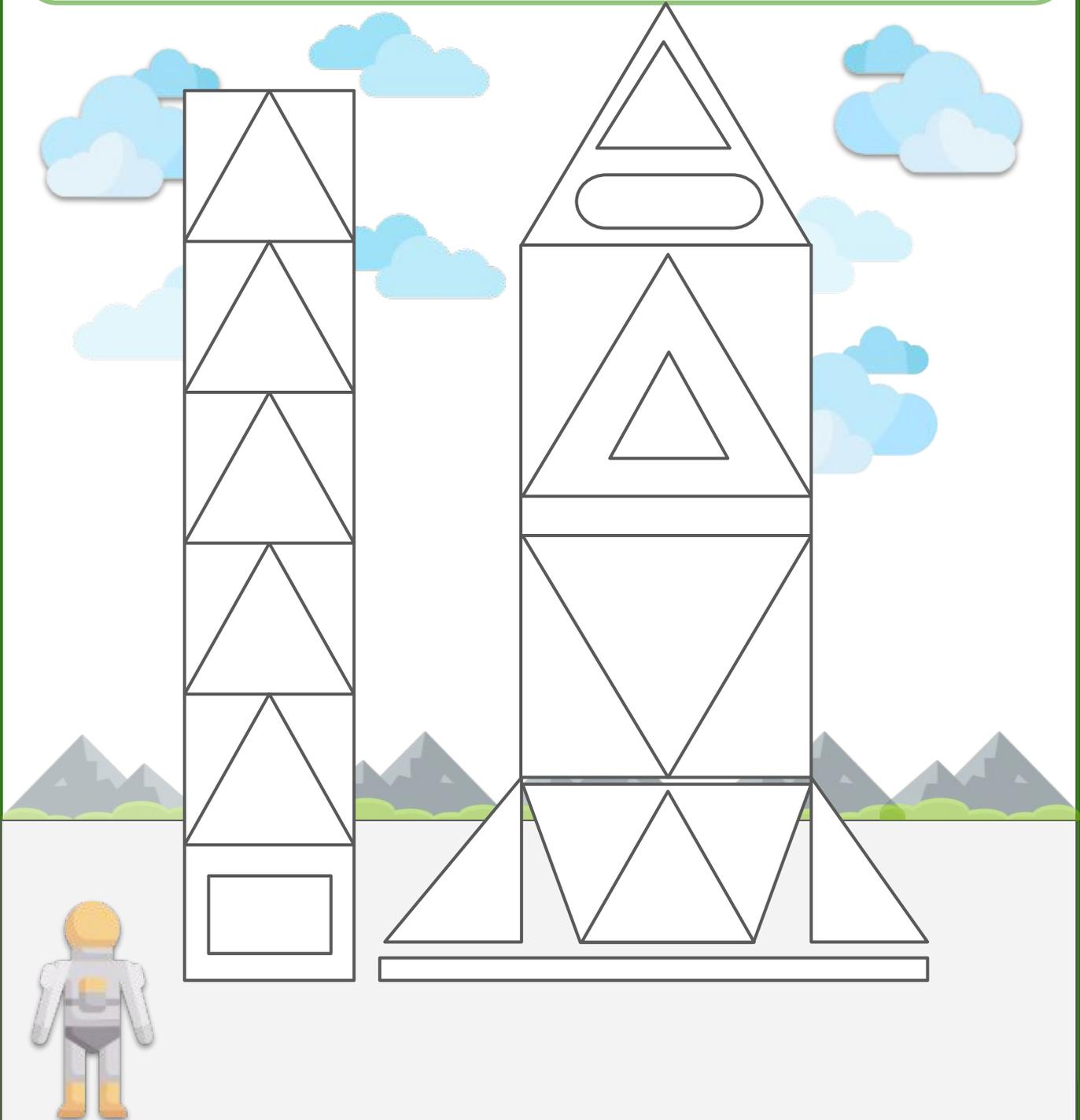


3, 2, 1...BLAST OFF!

G3

Basic

A team of astronauts are going to outer space. Help them prepare for their mission. Color all of the equilateral triangles you find in the below picture. You may use a ruler or protractor to help measure the triangles.



ROCKETSHIP

G3
Basic

Inside the rocketship, the commander is navigating the vehicle and making sure everything is in order. Answer the questions for each number below to help make sure that everything is in place.

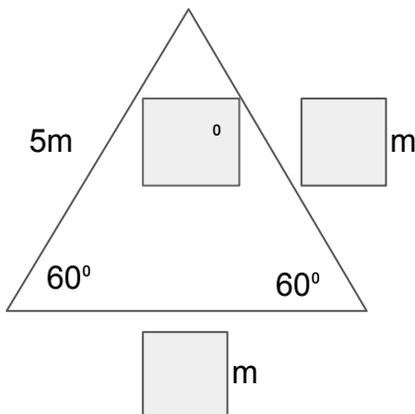
1. What is the measurement for each angle of an equilateral triangle? Please explain your answer.



2. The perimeter or sum of all sides of the equilateral triangle is 18m. What is the measurement for each side of the triangle?

Explanation/Solution:

3.



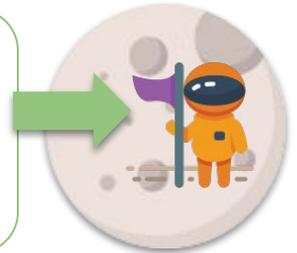
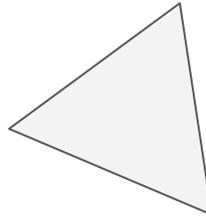
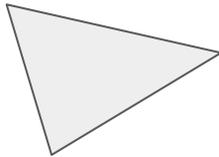
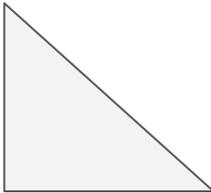
MOON LANDING

G3

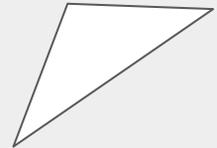
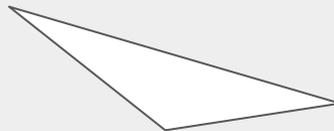
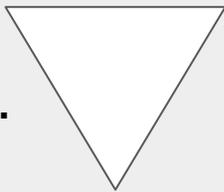
Basic

Help the team land on the moon! Identify and encircle the equilateral triangle for each number

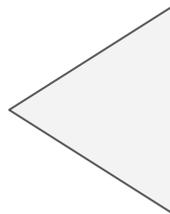
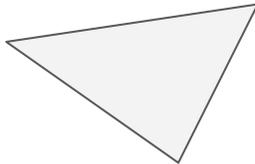
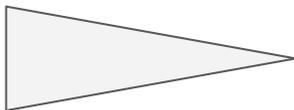
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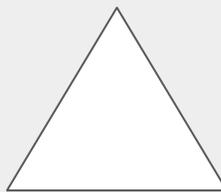
3.



2.



1.

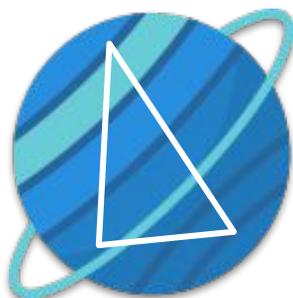
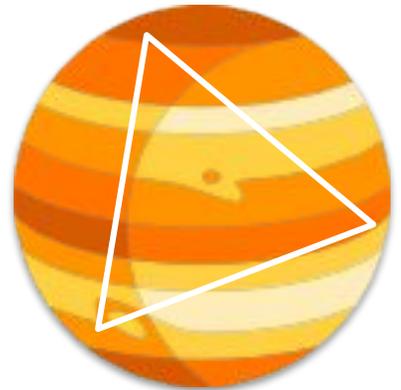


THE SOLAR SYSTEM

G3

Basic

The universe is so vast that we have yet to explore the other planets in our Solar System. Connect the planets containing equilateral triangles to the Sun.

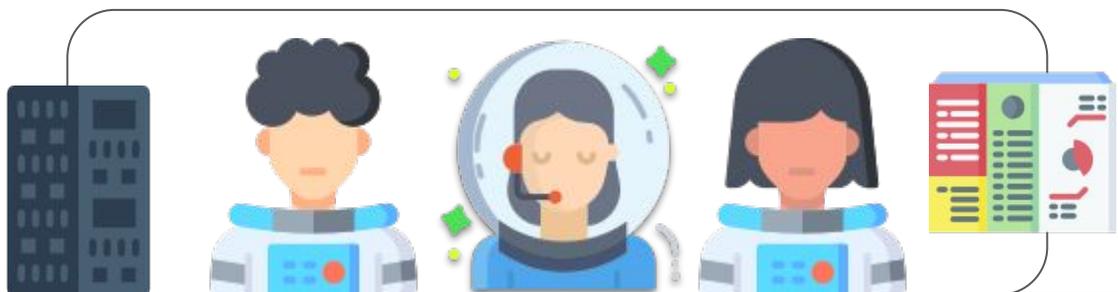


TEAM ASTRONAUT

G3
Basic

The astronauts are reviewing their notes and lists for this mission. Let us review what we have learned about equilateral triangles so far. Answer true or false for each number.

1. If a triangle has two sides with equal measurements and one side that has a different measurement, then all three angles can be equal.	<input type="checkbox"/> True <input type="checkbox"/> False
2. If the sum of two angles in a triangle is 120° , the third angle is 60° .	<input type="checkbox"/> True <input type="checkbox"/> False
3. If one triangle has two 60° angles, then this is an equilateral triangle.	<input type="checkbox"/> True <input type="checkbox"/> False
4. A triangle can have all equal angles and all sides with different measurements.	<input type="checkbox"/> True <input type="checkbox"/> False
5. 60° is the angle measurement for all angles of an equilateral triangle.	<input type="checkbox"/> True <input type="checkbox"/> False



SPACE STATION

G4
Advanced

The team of astronauts were sent to outer space to repair and maintain the Space Station. Help by solving the problems below. Encircle the correct answer for each number. Show and explain your solution on the space provided.

1. The commander and her team will need to rewire a part of the space station. The total length of the wire is 27 meters. The wires have to form an equilateral triangle. How long should each side of the triangle be?

- a. 5 meters
- b. 10 meters
- c. 9 meters
- d. 8 meters

Explanation/Solution:

2. The team needs to test the solar panels by adjusting it to a triangular shape. The sum of two angles of the solar panel is 120° . What is the angle measurement of the third angle?

- a. 180°
- b. 90°
- c. 60°
- d. 30°

Explanation/Solution:

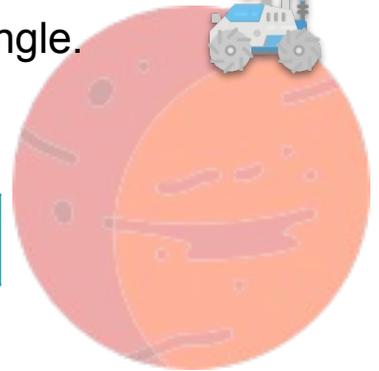


LIFE ON MARS

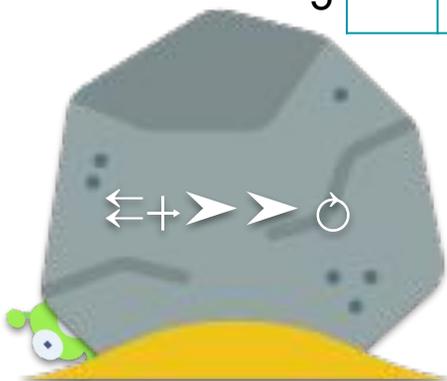
G4
Advanced

The Mars rover was able to find some sort of symbols on a rock that may form a message. Is there life on Mars? Help decode it by answering the puzzle below.

1. How many angles and sides are equal in an equilateral triangle?
2. The equilateral triangle has all angles measuring less than 90° . What kind of triangle is an equilateral triangle?
3. What do you call an acute triangle with all sides equal?
4. There are three sides and _____ in a triangle.
5. What is the tool use to measure an angle?



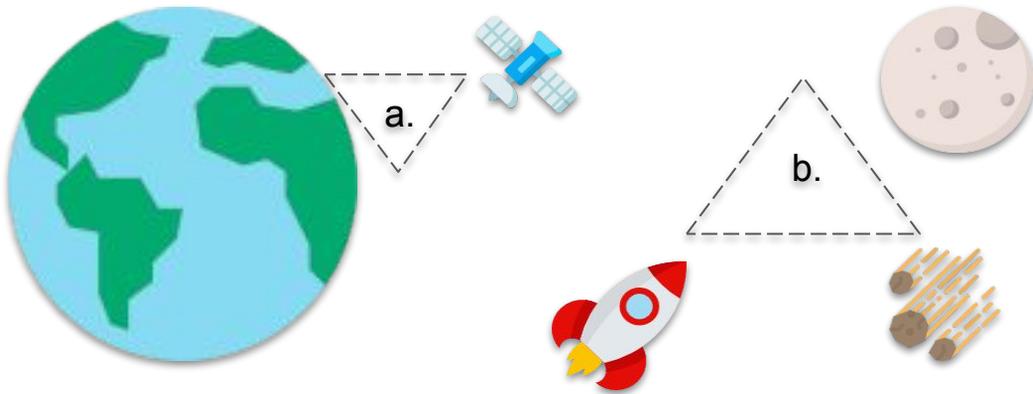
			1							
2										
3										
	4									
		5								



What is the highlighted message?



The astronauts have to send a status update to ground control. Let us calculate how far the distance of the below objects using the concept of equilateral triangles. Answer each question below.



1. The total perimeter or sum of all sides of Triangle A is 6,000 km. The distance of the rocketship from Earth is twice the distance of one side of Triangle A. How far is the rocketship from Earth?

Solution:

2. The total perimeter or sum of all sides of Triangle B is 75,000 km. The distance of the asteroids to the rocketship is half of one side of Triangle B. How far are the asteroids from the rocketship?

Solution:



OUT OF THIS WORLD

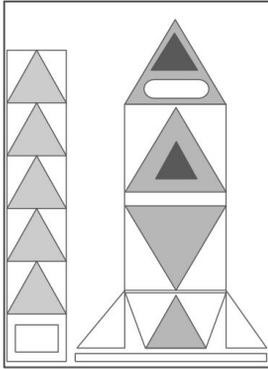
G4
Advanced

We mostly find circular objects in outer space. Can you imagine a galaxy made up of triangles? Draw your own galaxy and planetary system made up of equilateral triangles. Name your own planets, moon, stars, and sun. Be mindful of your measurements and angles!

A large, empty rounded rectangular box for drawing a galaxy and planetary system made of equilateral triangles.

ANSWER GUIDE

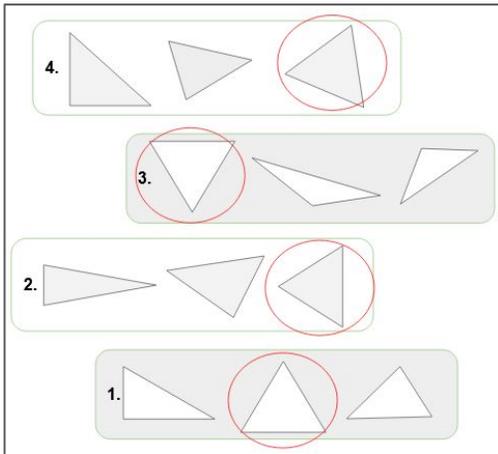
Activity 1



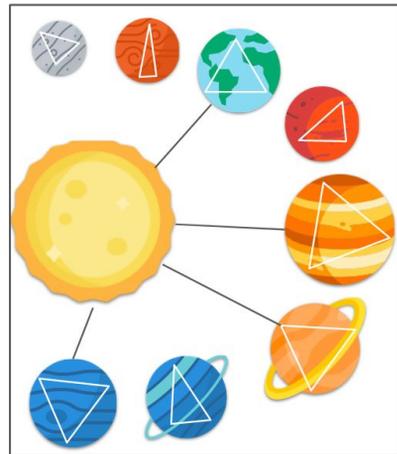
Activity 2

- The measurement for each angle of an equilateral triangle is 60. The sum of all angles of a triangle always equals to 180. 180 divided by three angles is 60.
- $18\text{m} / 3 \text{ sides} = 6\text{m}$ per side
An equilateral triangle has three sides with equal measurement.

Activity 3



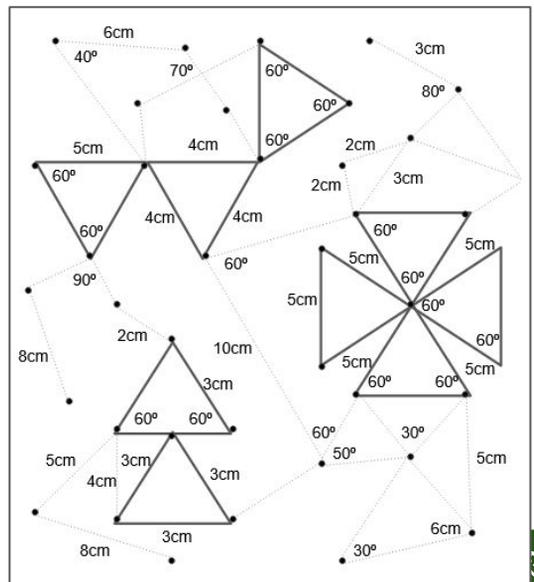
Activity 4



Activity 5

- False
- True
- True
- False
- True

Activity 6



Activity 7

- Solution: $27\text{m} / 3 = 9\text{m}$**
The total length of the wire is divided to three equal sides.
- Solution: $180^\circ - 120^\circ = 60^\circ$**
The sum of all angles of a triangle equals 180° .



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