

## JSS2 SECOND TERM BASIC TECHNOLOGY E-LESSON NOTE SCHEME

1. First Aids
2. First aid II
3. Rescue operation
4. Rescue operation II
- 5.
- 6.
- 7.

### WEEK 1

#### First aid

#### Performance objectives

Students should be able to:

1. Define first aid
2. Identify contents on a first aid box
3. Apply first aid measures

#### Content

#### First aid

First aid treatment can be defined as the immediate and temporary care given to an accident victim or sick person before the arrival of the doctor or before taking the victim to the hospital.

**First Aid Box:** This is a simple box made of wood or plastic. The box usually contains the necessary materials needed to carry out first aid. The size is usually 30 x 25 x40cm.



First Aid Box

#### Reasons for First Aid

1. First aid is administered so as to reduce pain.
2. It arrests bleeding.
3. First aid prevents injuries from getting worse.
4. First aid can be a source of information to the doctor.

### **First Aid box Materials**

The materials used in administering first aid are as follows:

**Bandages:** This material is used to wrap wound and protect wound from infection.



**Bandage**

**Forceps:** This material is used for holding cotton wool when dressing wounds.



**Forceps**

**Cotton Wool:** Cotton wool is used in dressing wounds and cuts.



### **Cotton Wool**

**Plasters:** The plaster is used to cover wounds and cuts directly, while holding the cotton wool in place.



### **Plasters**

**Safety Pins:** These are pins used to fasten the bandage in place on wounds.



### Safety Pins

**Razor Blade:** In first aid administration, the razor blade is used for cutting plaster and bandages where there is no scissors.



### Razor blade

**Sterile Gauze:** It is used for sterilizing wounds so as to avoid germs and infections.



### Sterile Gauze

**Record Book and Pen:** With this, the name, sex, age, class of the student, the nature of injury and the type of treatment given can be recorded.

**Disposable Hand Gloves:** This material can protect against direct contact with blood and dirt.



**Disposal hand gloves**

### **Application of simple first aid treatment On snake or scorpion bite**

1. Tie a cloth round the leg
2. Use razor blade to make one or two-incision on the bite point so that the poison can flow out
3. Take the person and the snake (if killed to the hospital) for proper treatments.

### **Cuts (minor cuts)**

1. Press the thumb against the affected part to stop further bleeding.
2. Sprinkle some water to wash the part.
3. Put a little disinfectant on a piece of cotton wool and clean the infected area.
4. Place a clean pad over the cut.
5. Use a bandage to hold the pad in position.

### **Deep cuts**

1. Remove and loosen all tight clothing on the patient
2. Place a pad directly over the cut

3. While holding the pad in position, make the patient lie down and rise the infected part above the rest of the body.
4. Then use a bandage to hold the pad in position

## Sub-Theme: Safety

### WEEK 2

#### First aid II

#### Performance objectives

Students should be able to:

1. Discuss the ABC of first aid and its application

#### Content

#### ABC of first aid

The priorities of first aid are

**A AIRWAY**

**B BREATHING**

**C CIRCULATION (and bleeding)**

Only then look at burns and broken bones.

#### A- Airway

The airway of an unconscious person may be narrowed or blocked, making breathing difficult and noisy or impossible. This happens when the tongue drops back and blocks the throat. Lifting the chin and tilting the head back lifts the tongue away from the entrance to the air passage. Place two fingers under the point of the person's chin and lift the jaw, while placing your other hand on the forehead and tilting the head well back. If you think the neck may be injured, tilt the head very carefully, just enough to open the airway.

#### B Breathing

Check for breathing by placing your head near the person's nose and mouth. Feel for breath on your cheek or moisture on the back of your hand.

#### FIRST THINGS FIRST

In an emergency any number of things may need your attention at the same time. If you try to do everything at once you may easily get distracted from the essential matters. On arriving at the scene...

## 1. Assess the situation

- Take in quickly what has happened.
- Look for dangers to yourself and to the casualty
- Make the area safe

## 2. Assess casualties

- An unconscious person always takes priority and needs immediate help to make sure he or she can breathe

Only then should you begin to assess any injuries

If a person has just stopped breathing use mouth to mouth ventilation. Make sure the airway is open and head tilted back. Pinch the nostrils together, take a deep breath and blow into the mouth, firmly sealing your lips around the mouth so air is not lost. You should see the chest rise.

Remove your lips and let the chest fall. Continue this, giving about ten breaths every minute until help arrives or breathing begins.

### C Circulation

Check for circulation (to see if the heart is still beating) by feeling for the Adam's apple (lump on the windpipe) with two fingers. Slide the fingers to the side of the windpipe and feel for the pulse. If the heart has stopped beating, use chest compression to try to restart the heart. Place your hand flat just above the point where the ribs meet the breastbone. Bring the other hand on top of it and lock your fingers together. With your arms straight, press down firmly on the breastbone, pushing it down by 4–5 cm. Release the pressure and repeat the compressions at a rate of about 80 per minute. If the person is also not breathing, alternate 15 compressions with two breaths until help arrives.

Stop bleeding by applying firm pressure to the wound for about 15 minutes. Never use a tourniquet.

### The Recovery Position

This is the best position for an unconscious person or someone having a fit. It allows them to breathe easily and prevents them from choking. After checking the ABC, bend the nearest arm to you, putting the hand by the head. Then bring the far arm across the chest and hold both hands in one of yours. With your other hand pull the furthest leg up at the knee and roll the person towards you to lie in this position.



# Basic Life Support

## DRS ABCD action plan

**D**



### Check for **Danger**

Make sure it is safe for you, the casualty and bystanders.

**R**



### Check for a **Response**

Use a talk and touch technique to check for a response.  
Talk: "Can you hear me?", "Open your eyes". Touch: squeeze shoulders firmly

**S**



### Call 000 **Send** for help

Shout for help or send someone to call Triple Zero (000).  
If required, send for help at the earliest possible stage.

**A**



### Open the **Airway**

Use the head tilt and chin lift technique to open the airway.  
If blocked, turn the casualty onto their side and clear their airway.

**B**



### Check for **Breathing**

Look, listen and feel for normal breathing.  
- If not breathing or not breathing normally, commence CPR.

**C**



### Commence **CPR**

Give **30 compressions** followed by **2 rescue breaths**.  
If unable or unwilling to give rescue breaths, give compression only CPR.

**D**



### Attach a **Defibrillator (AED\*)**

Attach an AED\* as soon as available and follow the prompts.  
\*AED: Automated External Defibrillator

Continue CPR until the casualty responds or normal breathing returns.

## WEEK 3

### Rescue operation

#### Performance objectives

Students should be able to:

1. Explain the meaning of rescue operation.
2. Identify the different aspects of rescue operation

#### Content

### Rescue operation

Rescue operation comprises of responsive operations that usually involve the saving of life or prevention of injury during an incident or dangerous situation.

Tools used might include search and rescue dogs, mounted search and rescue horses, helicopters, the “jaws of life”, and other hydraulic cutting and spreading tools used to extricate individuals from wrecked vehicles.

Rescue operations are sometimes supported by special vehicles such as fire department’s or EMS heavy rescue vehicle.

Rescue operations require a high degree of training and are performed by rescue squads, either independent or part of larger organizations such as fire, police, military, first aid, or ambulance service.

Aspects of rescue operation

They include

Preparation and selection of rescue equipments

Establishment and management of safe rescue teams

Rescuing the environments

Rescuing the vehicles

Rescuing the victims

Management and transfer of casualties

## WEEK 4

### Rescue operation II

#### Performance objectives

Students should be able to:

1. Describe the steps involved in each aspect of rescue operation.

## **Content**

### **Different aspects of rescue operation**

They include

1. Securing the environment
2. Vehicles
3. Victims

### **Steps involved in environmental rescue operation**

The following are steps involved in environmental operation

1. Working area must be established to be safe in order to prevent injury to self and others.
2. Organized standards and procedures should be put in place to prevent movement of vehicle during access of people and people are also restricted to move or cross the road.
3. Hazards should be minimized during the rescue operation to prevent injury to self and others
4. Scene management and procedure should be followed in accordance with organizational procedure and legal equipment.

### **Steps involved in vehicle rescue operation**

1. There must be a procedure that must be implemented to protect the casualties from the injury or pain during access and removal.
2. Access plan are determined in with team leader and medical staff.
3. Access the rear door latch. Gain access to the rear door latch by spreading the rear door window.
4. Pop the rear door latch. Place your spreaders into the gap that you have created near the latch.
5. Make a relief cut.
6. Begin to spread.
7. Cut the B post.

### **Steps involved in victims rescue operation**

1. Organized standards and procedures should be put in place to prevent movement of vehicles during access of people and people are restricted to move or cross the express road.

2. Scene management procedures should be followed in accordance with organizational procedures and legal requirements.
3. The violent scene is prepared to facilitate the prompt and safe rescue of casualties

## **WEEK 5**

### **Materials and their common use**

#### **Performance objectives**

Students should be able to:

1. State the common uses of wood
2. Explain the specific uses of ferrous and non-ferrous metals and their alloy.

#### **Content**

### **Materials and their common use**

#### **Common uses of wood**

1. Wood is used in making windows, doors and roof construction
2. Some furniture such as chairs are used as chairs, tables, shelves, ward rope and cupboard are made of wood.
3. Pulp and paper are products of wood from which exercise book, text book and news-paper are made from.
4. Some electric poles, railway sleepers, wagons, lorry bodies, boats and canoes are made of wood.
5. Used as packaging cases for some heavy equipment
6. Wood is used in making medicine e.g. for making artificial limbs
7. Matches sticks are made from wood.
8. Charcoal, sawdust, tar, dyestuff are all products made from wood.

#### **Uses of metals**

Ferrous metals are those metals consisting mainly of iron

1. Mild steel or low carbon steel is used in the production of bolt, nut, tubes, tin plates etc.
2. Wrought iron is used in making chairs, crane book haulage gear
3. Cast iron is used for making piston rings, marking out tables, cylinder blocks.

4. High carbon steel is used for making pliers, hammer head, punches, screw driver, hacksaw, blade, cutting tools, springs, and chisel tools.

### **Non ferrous metals**

These are non-iron based metal they include:

**Aluminum:** this is used in making aircraft parts, electrical cables, aluminum foils, boxes and cooking utensils.

**Zinc:** this is used as roofing sheets, for galvanizing, and for protective coating on steel sheet.

**Lead:** used in battery element, roofing sheet and soft solder etc.

**Copper:** used in making copper wires, rivets, soldering and water-pipes.

**Tin:** for making wire and tin plates. Generally metals are good conductor of electricity and heat.

## **Test : Basic technology JSS2 First term mid term test**

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1. One of the major reasons for first aid is

First aid is administered so as to reduce pain.

It arrests bleeding.

First aid prevents injuries from getting worse

All of the above

2. Which of the following is used for sterilizing wounds so as to avoid germs and infections?

Sterile gauze

Plaster

Razor blade

Cotton wool

3. \_\_\_\_\_ is used for holding cotton wool when dressing wounds.

Forceps

Biceps

Triceps

Instep

4. The following are found in first aid box except

Plaster

Razor blade

Cotton wool

Ratchets

5. Which of the following is used to protect against direct contact with blood and dirt?

Disposable hand gloves

Plaster

Razor blade

Cotton wool

6. The priorities of first aid are

Airway

Breathing

All of the above

Circulation

7. Which of the following drugs can be found in a first aid box?

Paracetamol

Penicillin

Methylated spirit

All of the above

8. First aid can be applied to all the following except?

Cut and burns

Poisoning

Snake bites

None of the above

9. \_\_\_\_\_ is used to soak blood oozing from the wound?

Scissors

Tong

Cotton wool

Bandage

10. \_\_\_\_\_ is the simple medical treatment given to somebody before a doctor come or before taking the person to the hospital

Treatment

Assistance

Rescue

First aid

11. In the ABC of first aid B stands for

Circulation

Airways

Breathing

Blockage

12. The box that contains the material used to give simple medical treatment before the arrival of a doctor is called

Drug box

Equipment box

Tool box

First aid box

13. Which of the following can be classified as a rescue operation?

Operation that involves saving of life

Prevention of injury during an accident or injury

Rescuing victims from flood, earthquakes, fire outbreak

All of the above

14. First aid box is usually painted white or \_\_\_\_\_ with a symbol of cross on its side



Red

Green

Blue

Orange

15. The activity that involves saving of lives during an accident is called

First aid

Assistance

Rescue operation

Rescue

16. All the following are needed during rescue operation except

Rescue ropes

Torchlight

Fire extinguisher

Computer

17. \_\_\_\_\_ is worn during first aid treatment to protect skin against contamination

Hand glove

Work shop shoe

Google

Apron

18. Which of the following is used by search and rescue operation

Snake

Lion

Rescue dogs

Monkey

19. To rescue victims of a collapsed building which of the following will be needed?

Diggers

Shovel

Helmet

None of the above

20. To rescue victims of a flood which of the following will not be needed?

Fire jacket

Life jacket

Helicopter

Canoe

21. All of the following will be needed to rescue a victim of fire outbreak except?

Ladder

Fire extinguisher

Rope

All of the above

22. Which of the following items is made from wood?

Electric pole

Match stick

Charcoal

All of the above

23. \_\_\_\_\_ are metals consisting mainly of iron

Ferrous metal

Non-ferrous metals

Alloys

Steel

24. An example of a ferrous metal is

Cast iron

Brass

Bronze

Lead

25. Bolts, nuts, tube and tin plates are made from

Wrought iron

Cast iron

Zinc

Mild steel

26. Which of the following metals is used to produce aircraft parts?

Aluminum

Zinc

Tin

Copper

27. The type of plastic that can be remoulded when exposed to heat

Thermosetting

Thermoplastic

Thermo-fluid

Thermo cool

28. If a triangle as all its sides equal it is called \_\_\_\_

Isosceles

Right angle

Scalene

Equilateral

## **WEEK 6**

### **Materials and their common use II**

#### **Performance objectives**

Students should be able to:

1. State the common uses of ceramics and glass.
2. State the uses of plastics.

## **Content**

### **Uses of ceramics**

Due to the fact that ceramics can withstand very high temperature, they are used in making furnace. A furnace is a structure or apparatus in which a lot of heat is generated. While the water in kettle boils at 100°C, iron melts at 1536°C. Ceramics can withstand even higher temperature.

Ceramics can carry heavy loads and as a result of this property, we use brick and cement block to build houses. The wall of any building carries the roof of the building, the top floor, people and decoration.

Most electric poles are made from concrete which is a type of ceramic. The insulator between the lines is also ceramic. Other ceramic are the wind screen of vehicles, ordinary looking glass, television screens and ashtrays.

A modern toilet is built entirely with ceramics. The walls are made from concrete blocks which are ceramics. The walls are made from concrete blocks, which are ceramics, while the tiles, sinks, bath and toilet bowls are all made of ceramics.

### **Uses of glass**

It is clear that modern life would not be possible without glass!

Glass is used in the making of the following products:

1. Packaging (jars for food, bottles for drinks, flacon for cosmetics and pharmaceuticals)
2. Tableware (drinking glasses, plate, cups, bowls)
3. Housing and buildings (windows, facades, conservatory, insulation, reinforcement structures)
4. Interior design and furniture (mirrors, partitions, balustrades, tables, shelves, lighting)
5. Appliances and Electronics (oven doors, cook top, TV, computer screens, smart-phones)
6. Automotive and transport (windscreens, backlights, light weight but reinforced structural components of cars, aircrafts, ships, etc.)
7. Medical technology, biotechnology, life science engineering, optical glass
8. Radiation protection from X-Rays (radiology) and gamma-rays (nuclear)

9. Fiber optic cables (phones, TV, computer: to carry information

## **Rubber**

Rubber is an elastic material that can be stretched but can return to its original state.

### **Types of Rubber**

**Natural Rubber:** Natural rubber is obtained from the sap of rubber tree (*Hevea brasiliensis*). When the rubber tree is tapped, the milky-white liquid obtained is called the rubber latex. Natural rubber can be improved upon by adding other chemical at high temperature. This process is called vulcanization.

**Synthetic Rubber:** This class of rubber is known as elastomers. They are produced from petroleum products. Synthetic rubber cannot be vulcanized.

### **Uses of Rubber**

1. Rubber can be used as shock dampers (absorbers) and as engine mounting.
2. Rubber is used for making tubes and tyres.
3. It is used for producing bathroom slippers.
4. Rubber is used for water proofing.
5. Rubber is used as electrical insulator.
6. Products such as vee-belts, hoses, shoe heels and soles, tyres, footballs are all made from rubber.

## **Plastics**

Plastics are produced from petroleum products known as monomers. When a great number of monomers are combined through chemical reactions, polymers are formed. It is this polymers that are referred to as plastics. The process of combining monomers is known as polymerization. The major component of plastic is resin. Resin is a material which softens and flows and can be moulded.

### **Types of Plastics**

**Thermosetting:** This is the type of plastic produced from thermosetting resin. This type of plastic cannot be remoulded when exposed to heat. Examples are polyester, amino formaldehyde and Bakelite used for producing the handle of enamel pots and dishes.

**Thermoplastic:** These are plastics made from resin that does not set rigidly heating. They soften on heating and can be remoulded into other shapes e.g. plastic buckets

## Uses of Plastics

1. Plastics are used for dinnerware (dishes).
2. Used for electric switchboxes and switches.
3. Used for trays, cutlery, handles, brushes and baby dishes.
4. Plastic is used for funnels, radio and television cabinets.
5. Mobile phone casing, automobile accessories and spectacle (eye-glass frame)
6. Used for roofing sheets, refrigerator doors and air-conditioning housing.
7. Plastic is used for electric iron and cooking pot handles.
8. Used for containers for liquids, computer housing cases, ball-point pen casing.

## WEEK 7

### Geometric construction

#### Performance objectives

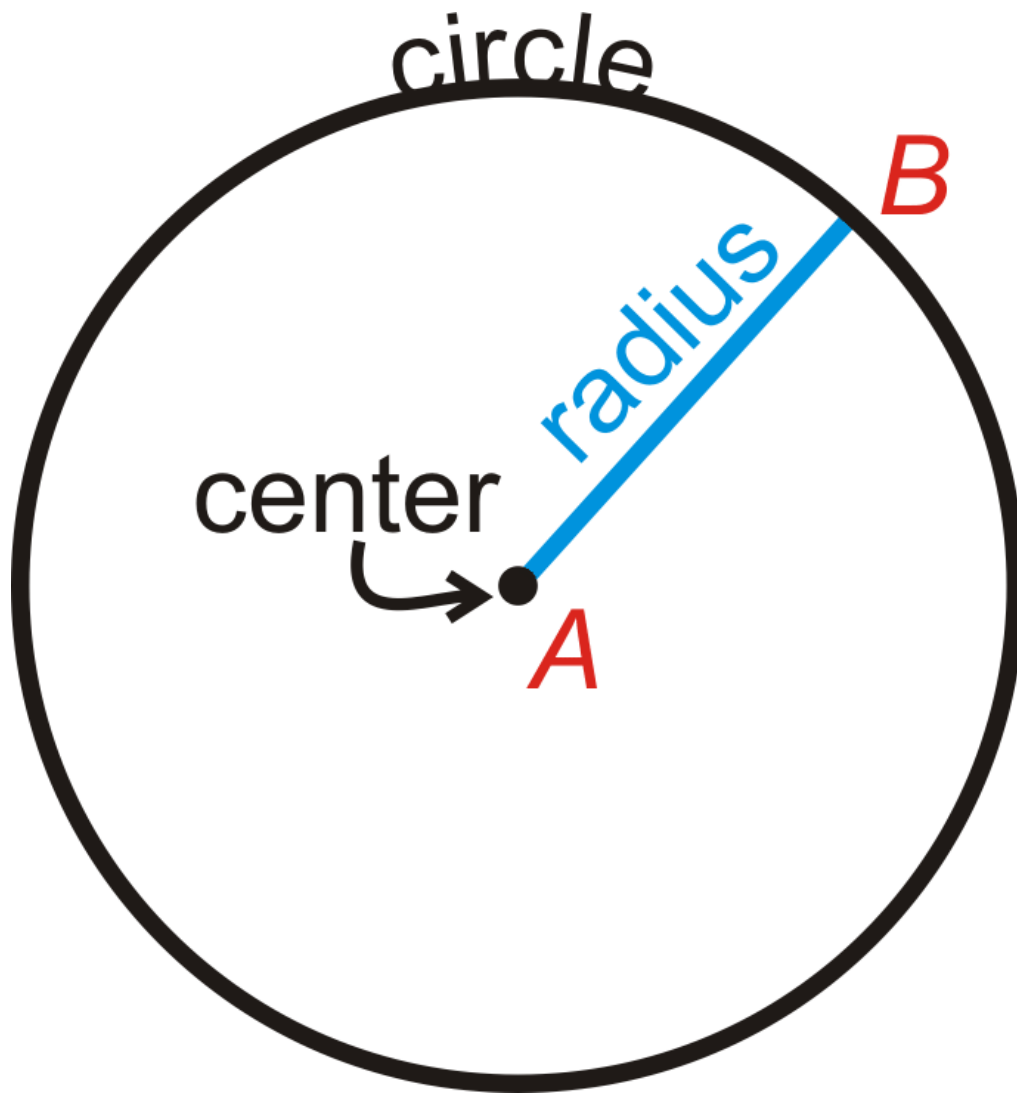
Students should be able to:

1. Define a circle
2. List the parts of a circle

#### Content

##### Circle

A circle is the set of all points in the plane that are the same distance away from a specific point, called the center. The center of the circle below is point A. We call this circle “circle A,” and it is labeled  $\odot A$ .



### Important Circle Parts

**Radius:** The distance from the center of the circle to its outer rim.

**Chord:** A line segment whose endpoints are on a circle.

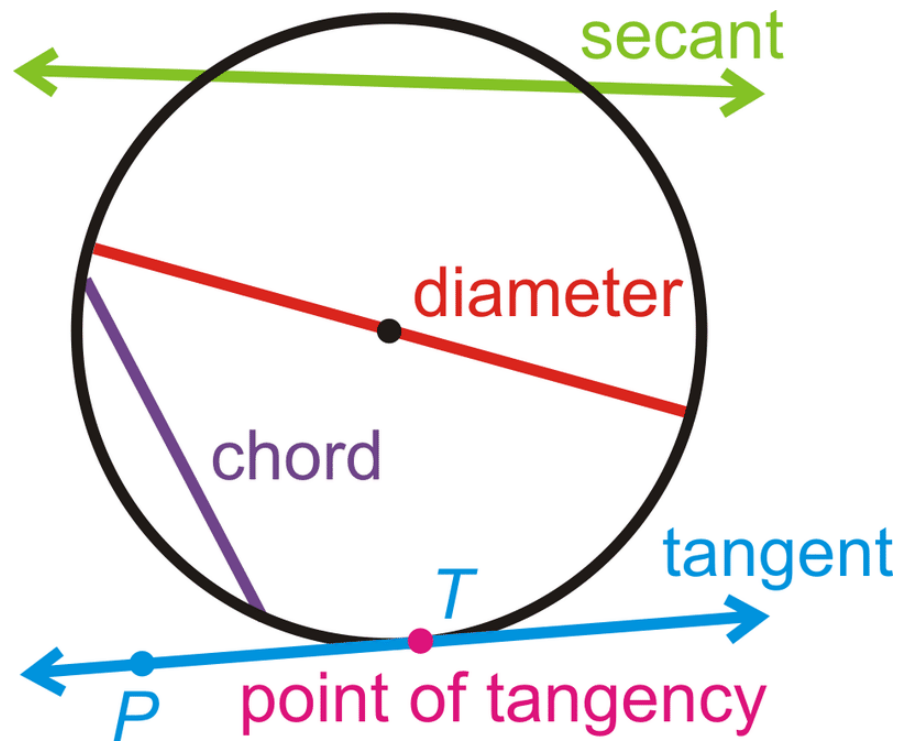
**Diameter:** A chord that passes through the center of the circle. The length of a diameter is two times the length of a radius.

**Secant:** A line that intersects a circle in two points.

**Tangent:** A line that intersects a circle in exactly one point.

**Point of Tangency:** The point where a tangent line touches the circle.

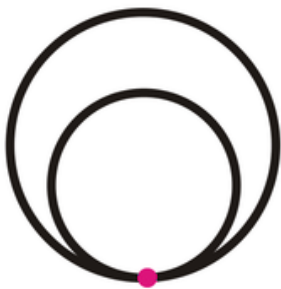




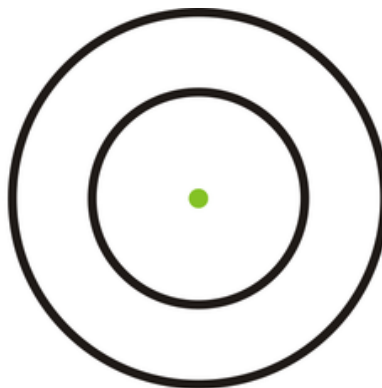
**Tangent Circles:** Two or more circles that intersect at one point.

**Concentric Circles:** Two or more circles that have the same center, but different radii.

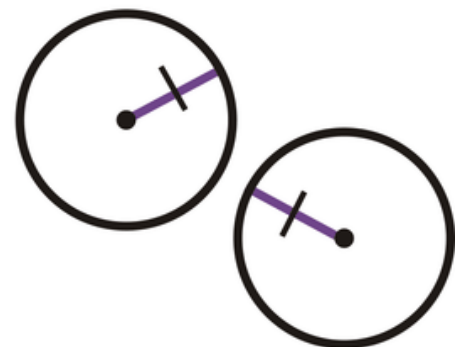
**Congruent Circles:** Two or more circles with the same radius, but different centers.



tangent circles



concentric circles



congruent circles

## Geometric construction II

### Performance objectives

Students should be able to:

1. Use appropriate instrument to divide a circle into equal parts.
2. Use appropriate instrument to draw a tangent and normal to a given circle and two equal circles

### Content

#### Geometric Construction

What is geometric construction? It is the drawing of lines, angles, and shapes using only a pen or pencil, compass, and a straight edge. There are no numbers you have to deal with.

Why is this useful? It is useful when you have to draw lines and angles without measuring anything. And if you are an artist, this is a handy skill to have to ensure that any lines or angles that you copy are exactly the same.

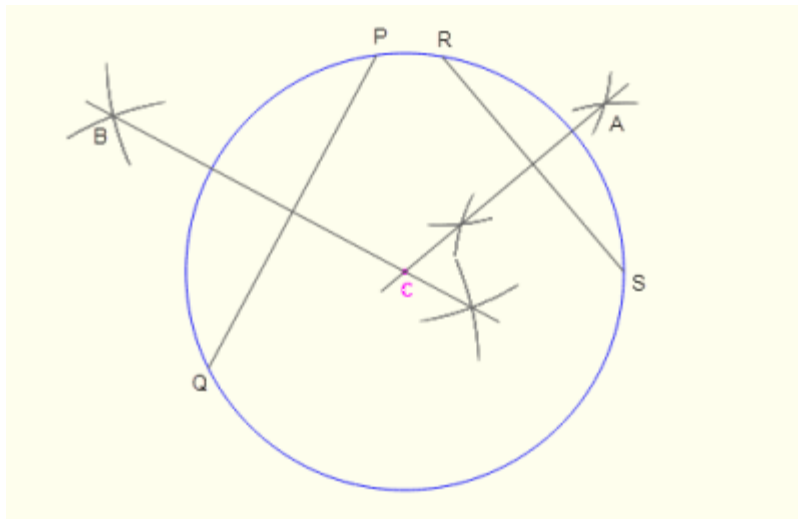
#### Tools Needed

The only tools you will need to copy and construct any line segment or angle, along with your pen or pencil, are a compass and a straight edge. In today's world, the most common straight edge is the ruler. But you can use anything that will give you a nice clean straight line when you take your pencil and run it along an edge. The compass is the mathematical tool that lets you draw nice clean circles and arcs; it's not the compass that people use to navigate directions.

#### Construction of circles

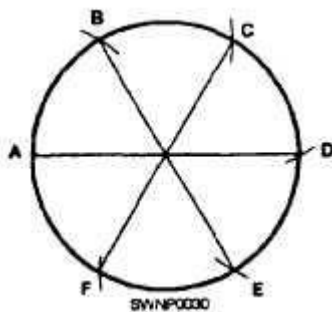
To find the center of a given circle

1. Mark 3 points A,B,C well spaced out on the circumference
2. Bisect the chord between one pair of point (AB)
3. Bisect the chord between the second pair of point BC the intersection at O is the centre of the circle.



To divide the circumference of a circle into a number of equal parts

1. Using constant radius method ( to divide the circumference into equal parts)
2. Draw the given circle with centre O
3. Draw horizontal line AB across the circle (Diameter)
4. With the radius of the circle and center A, describe an arc at C and D.
5. With the same radius describe an arc E and F to cut the circumference of the circle. Thus dividing the circumference into 6 parts



To divide the circumference into 8 parts, use  $45^\circ$  set squares as described above  $60^\circ$  or follow the following procedures.

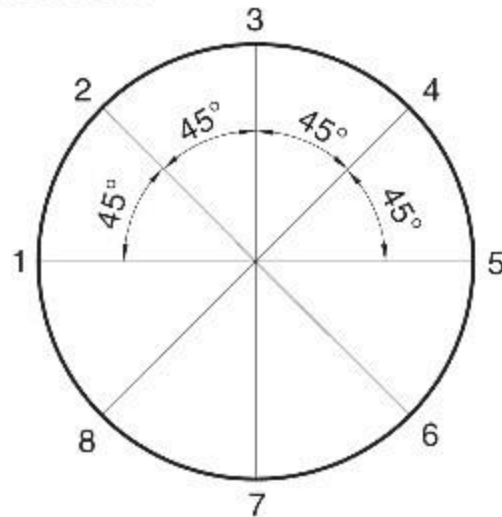
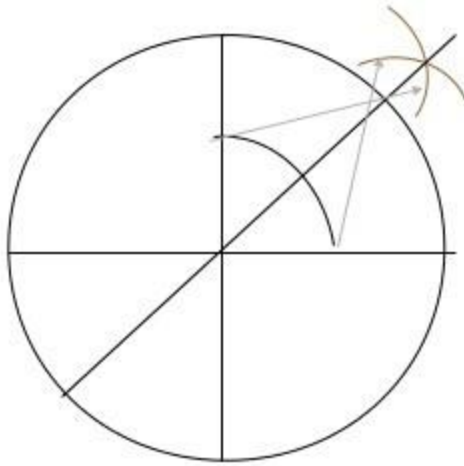
1. Draw the circle and draw the horizontal diameter AB
2. Draw a vertical diameter CD to pass through the centre of the circle and across diameter AB at O.
3. Bisect angle COB and COA, project the bisection line from G to H and from E to F. thus dividing the circle into 8 parts.

## To divide a given circle into 8 equal parts

be at  $90^\circ$  to each other.

Bisect the angles to get new diameters (2, 6) and (4, 8) at  $45^\circ$  to the horizontal and vertical diameters.

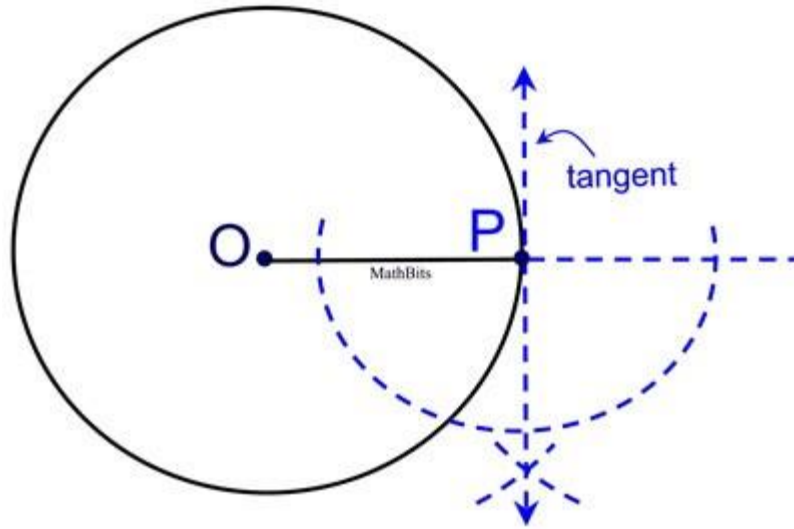
The circle is divided into 8 equal sectors



### Construction of the tangent of a circle

#### Steps:

- Draw a line connecting the point to the center of the circle
- Construct the perpendicular bisector of that line
- Place the compass on the midpoint, adjust its length to reach the end point, and draw an arc across the circle
- Where the arc crosses the circle will be the tangent points.



## WEEK 9

### Geometric construction III

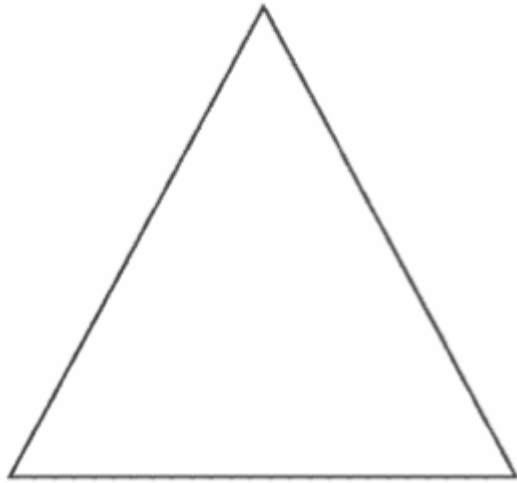
#### Performance objectives

Students should be able to:

1. Identify define and construct various triangles
2. Inscribe and circumscribe circles to triangles

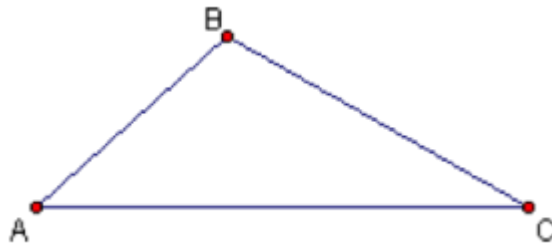
#### Content

### Triangles



A triangle has three sides and three angles. It is a closed figure with three line segments as its boundary. These line segments are called sides. It has three corners called vertices. The symbol for a triangle is  $\Delta$

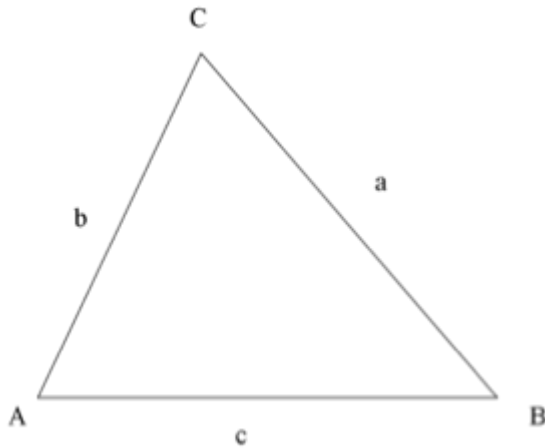
The three vertices are generally named by three consecutive alphabets such as A, B and C or X, Y and Z. A triangle with vertices A, B, and C is denoted by  $\Delta ABC$ .



Tri means three and so a Triangle has three angles. These angles are formed by two sides at each of the corners. The angle formed at the vertex A by the two sides AB and AC is called

The three sides and three angles of a triangle together are called the six parts or elements of the triangle.

Now look at the diagram below



The side BC is opposite to vertex A and is also denoted in short by “a”. The sides opposite to B and C are written as b and c. Thus sides  $BC = a$ ,  $AC = b$  and  $AB = c$

### **Properties of a triangle**

1. The sum of the three angles of any triangle is always 180 degree.
2. Any angle of a triangle is always greater than zero and less than  $180^\circ$
3. Not more than one angle can be  $90^\circ$  or more.
4. The sum of length of any two sides will always be greater than the length of the third side.
5. It is a closed plain figure.

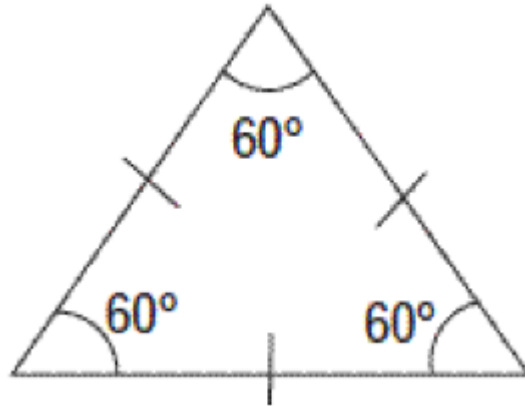
### **Types of Triangles**

A triangle can be classified by either its sides: or its angle.

**(A) A triangle is classified in three types as scalene, isosceles, or equilateral triangle based on its sides.**

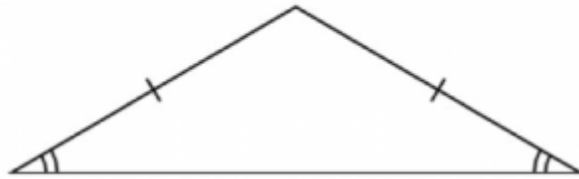
#### **1. Equilateral triangle**

A triangle having all sides equal is called an equilateral triangle. It's all angles are also equal. As sum of three angles of a triangle is  $180^\circ$ , so each angle of an equilateral triangle is  $60^\circ$ .



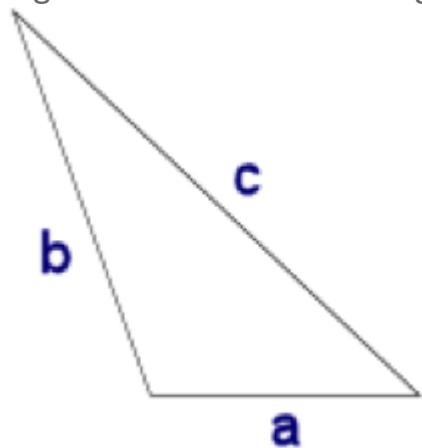
## 2. Isosceles triangle

A triangle having two sides equal is called an isosceles triangle. The angles opposite to equal sides are also equal.



## 3. Scalene triangle

A triangle having all sides of different length is called scalene triangle.



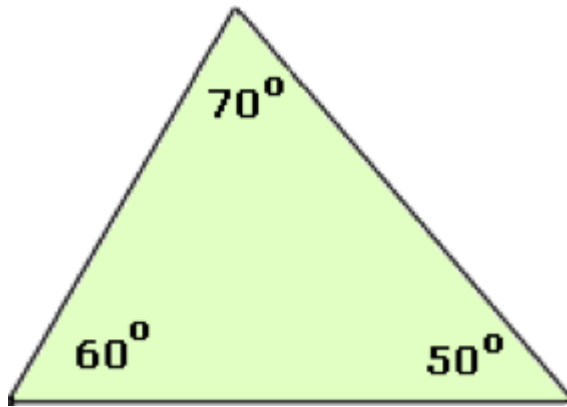
In the figure above, the sides  $a \neq b \neq c$ . Hence this is a scalene triangle.

**(B) A triangle is classified in three types as acute, right, or obtuse triangle based on its angles:**

### 1. Acute triangle

A triangle having all angles less than  $90^\circ$  is called acute triangle.

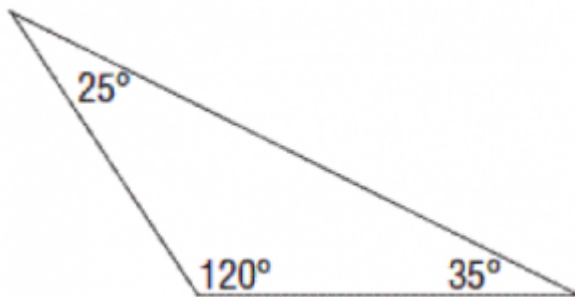




In the above triangle, the three angles are  $50^\circ$ ,  $60^\circ$  and  $70^\circ$ . All three are less than  $90^\circ$ . Hence it is an acute triangle.

## 2. Obtuse triangle

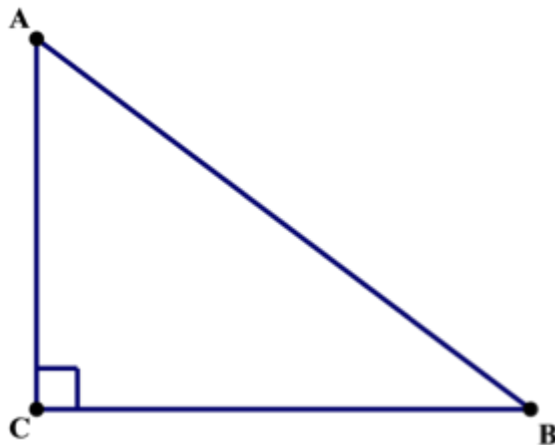
A triangle having one angle more than  $90^\circ$  is called an obtuse triangle.



In the triangle above, the three angles are  $25^\circ$ ,  $35^\circ$  and  $120^\circ$ . One of angle is more than  $90^\circ$ . Hence it is an obtuse triangle.

## 3. Right triangle

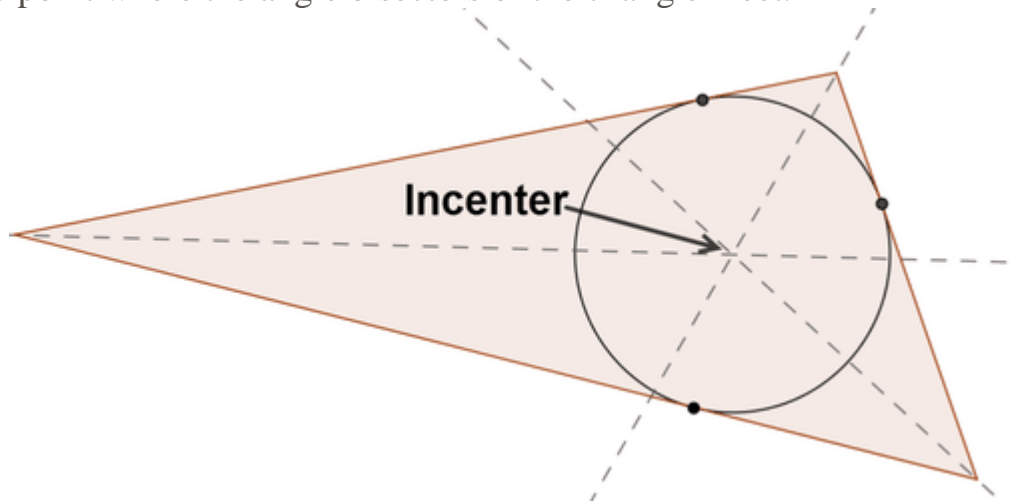
If anyone angle of a triangle is  $90^\circ$ , the triangle is called right triangle. The triangle below is a right angle triangle as



The side opposite to the right angle is called the hypotenuse. The hypotenuse is larger than the other two sides. In diagram above, the AB is the hypotenuse and is opposite to the right angle

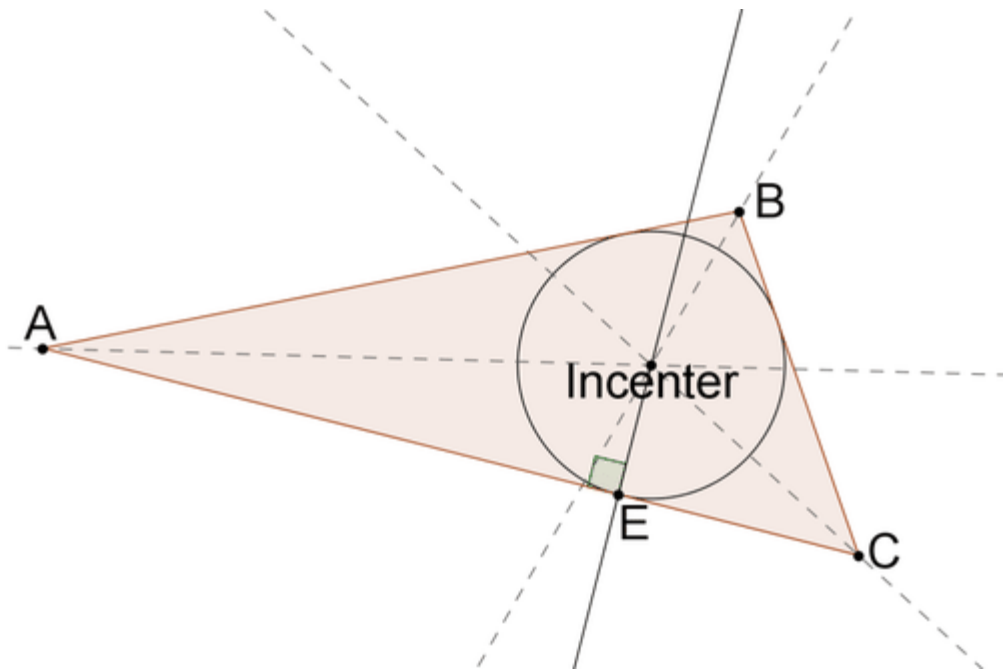
## Inscribed and Circumscribed Circles of Triangles

Given a triangle, an **inscribed circle** is the largest circle contained within the triangle. The inscribed circle will touch each of the three sides of the triangle in exactly one point. The center of the circle inscribed in a triangle is the **incenter** of the triangle, the point where the angle bisectors of the triangle meet.



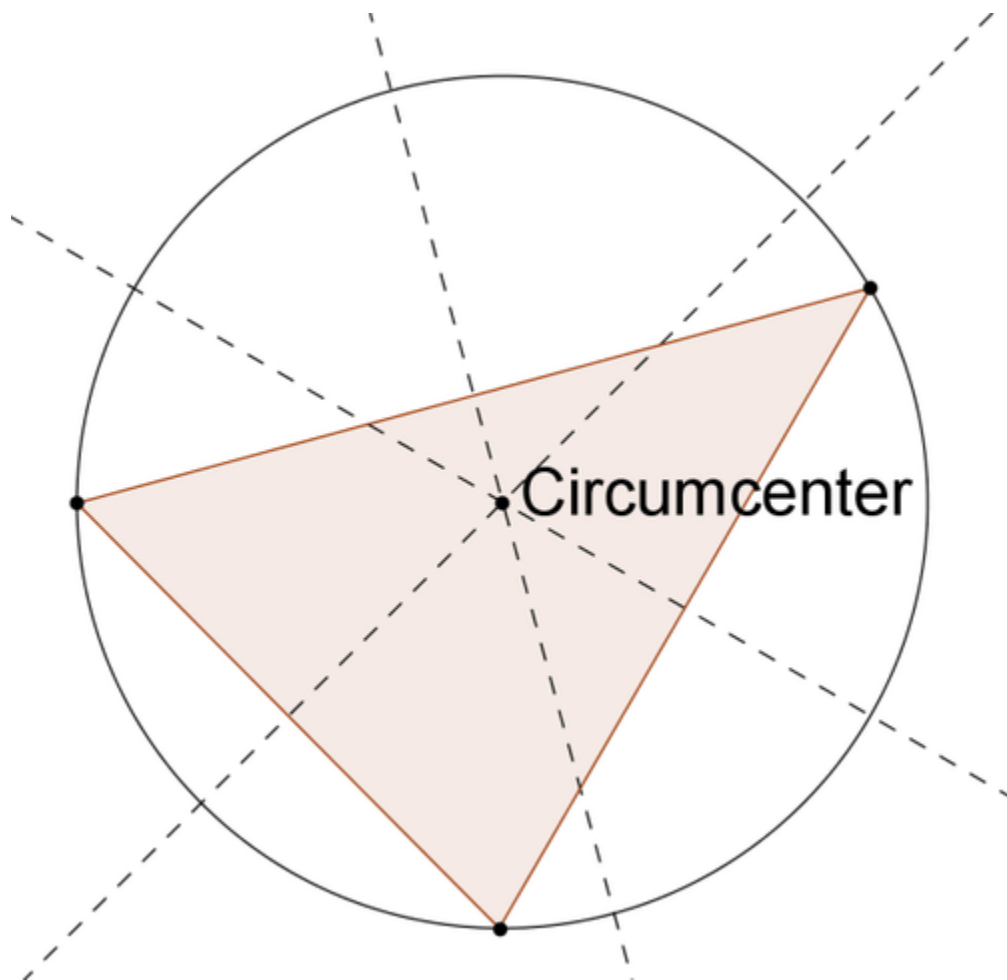
To construct the **inscribed circle**

1. Construct the incenter.
2. Construct a line perpendicular to one side of the triangle that passes through the incenter. The segment connecting the incenter with the point of intersection of the triangle and the perpendicular line is the radius of the circle.
3. Construct a circle centered at the incenter with the radius found in step 2.



The steps for constructing the inscribed circle for a given triangle will be explored in the problems below.

Given a triangle, the circumscribed circle is the circle that passes through all three vertices of the triangle. The center of the circumscribed circle is the **circumcenter** of the triangle, the point where the perpendicular bisectors of the sides meet.



To construct the circumscribed circle

1. Construct the circumcenter.
2. Construct a circle centered at the circumcenter that passes through one of the vertices. This same circle should pass through all three vertices.

## WEEK 10

### Geometric construction IV

#### Performance objectives

Students should be able to:

1. Define identify and construct regular and irregular polygon

#### Content

## Polygon

A closed plane figure made up of several line segments that are joined together. The sides do not cross each other. Exactly two sides meet at every vertex.

There are two main types of polygon - regular and irregular.

A regular polygon has equal length sides with equal angles between each side.

Any other polygon is an irregular polygon, which by definition has unequal length sides and unequal angles between sides.

**Pentagon:** The closed figure which is formed by five straight lines is known as a pentagon.

**Hexagon:** The six-sided polygon is known as a hexagon.

**Heptagon:** The polygon with seven sides is termed as a heptagon.

**Octagon:** As the name says, the Eight-sided polygon is known as Octagon.

**Nonagon:** The polygon which possesses nine straight lines is known as nonagon.

**Decagon:** The closed figure made with ten straight lines is termed as decagon polygon.



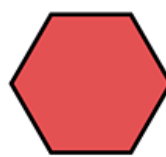
Equilateral triangle



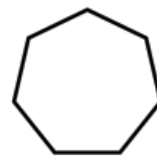
Square



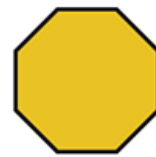
Pentagon



Hexagon



Heptagon



Octagon

### Test: Basic technology JSS2 First term Final test

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1. The following are uses of plastics except?

They are used for making electric iron

Refrigerator doors

Mobile phone casing

None of the above

2. The type of plastic that cannot be remoulded when exposed to heat

Thermosetting

Thermoplastic

Thermo-fluid

Thermo cool

3. The class of rubber is known as elastomers are

Natural rubber

Synthetic rubber

Neutral rubber

Lethargic rubber

4. The following are uses of glass except

Oven doors

Mirror

Windows

None of the above

5. The type of plastic that can be remoulded when exposed to heat

Thermosetting

Thermoplastic

Thermo-fluid

Thermo cool

6. A line that intersects a circle in exactly one point is known as

Tangent

Secant

Chord

Diameter

7. A line that intersects a circle in two points is known as

Tangent

Secant

Chord

Diameter

8. The distance from the center of the circle to its outer rim is known as

Radius

Chord

Diameter

Secant

9. A line segment whose endpoints are on a circle is known as

Radius

Chord

Diameter

Secant

10. When two or more circles that have the same center, but different radii they are referred to as

Congruent circle

Concentric circle

Tangent circle

Point of tangent

11. The unit of measurement of angle is \_\_\_\_\_

Revolution

Degrees

Centimeters

Meters

12. The point where two lines meet to form an angle is called

Altitude

Vertex

Adjacent

Hypotenuse

13. When two straight lines meet at a point a \_\_\_\_\_ is formed

Lines



Circle

Angle

Point

14. The shortest distance between two points is called a \_\_\_\_\_

Parallel line

Point

Straight line

Curve

15. Two lines that are always at the same distance apart and cannot meet are called

Perpendicular lines

Parallel lines

Straight lines

Convergent lines

16. If two sides of a triangle are equal, it is a \_\_\_\_\_ triangle

Isosceles

Right angle

Scalene

Equilateral

17. If a triangle has all its sides equal it is called \_\_\_\_\_

Isosceles

Right angle

Scalene

Equilateral

18. The sum of three angles in a triangle is

90 degrees

180 degrees

360 degrees

270 degrees

19. A triangle with no sides equal to one another is \_\_\_\_\_

Isosceles

Right angle

Scalene

Equilateral

20. The sum of three angles in a triangle is

90 degrees

180 degrees

270 degrees

360 degrees

21. A quadrilateral with its opposite sides equal and parallel is called

Polygon

Cone

Parallelogram

Triangle

22. Which of the following is not a parallelogram?

Square

Rectangle

Rhombus

Triangle

23. A closed plane figure with five sides is known as

Polygon

Pentagon

Parallelogram

Hexagon

24. A closed plane figure with eight sides is known as

Octagon

Pentagon

Polygon

Hexagon

25. Unequal length sides and unequal angles between sides is known as

Regular polygon

Irregular polygon

Rhombus

Decagon