

Worksheet

1. One mark questions.

Multiple choice questions.

1. Which change can occur when you add heat energy to water?

(a) The water can change from a liquid to a solid.

(b) The water can change from a gas to a liquid.

(c) The water can change from a liquid to a gas.

(d) The water can change from a solid to a liquid.

A- The water can change from a gas to liquid.

a. What is sublimation?

(a) a substance in a chemical reaction.

(b) the process by which particles leaves a liquid and become a gas.

(c) the process by which a solid changes

directly into a gas.

(d) a substance made by a chemical reaction.

A the process by which a solid changes directly into a gas.

3. Evaporation is when

(a) a substance changes from a liquid into a solid material.

(b) a substance changes from a liquid to a gas (or vapour) naturally.

(c) ~~a liquid~~ a substance changes from a gas (or vapor) into a liquid.

A a substance changes from a liquid to a gas (or vapor) naturally

4. What are states of matter?

(a) The temperature at which a liquid boils and becomes a gas.

(b) A law that states that for a fixed amount of gas at a constant temperature, the volume of the gas increases as its pressure decreases and the volume of the gas

decreases as its pressure increases.

(c) a term used to describe physical or chemical change in which energy is given off

(d) The physical forms in which a substance can exist; includes solid, liquid, gas and plasma.

A The physical forms in which a substance can exist; includes solid, liquid, gas and plasma.

5. Force changes the

(a) Motion of the body

(b) Speed of body

(c) shape of body

(d) All of these

A All of these

6. Which of the following is responsible for wearing out of bicycle tyres?

- (a) Muscular force
- (b) Magnetic force
- (c) Frictional force
- (d) Electrostatic force

A Frictional force

7. Force of friction depends on

- (a) roughness of surface
- (b) Smoothness of surface
- (c) Inclination of surface
- (d) all of these

A Roughness of surface

8. A toy car released with the same initial speed will travel farthest on

- (a) muddy surface
- (b) polished marble surface
- (c) cemented surface
- (d) brick surface

A Polished marble surface

9. Friction is a

- (a) non-contact force
- (b) Contact force
- (c) magnetic force
- (d) electrostatic force

A- Contact force

10. Which of the following produces least friction?

- (a) Sliding friction
- (b) Rolling friction
- (c) Composite friction
- (d) Static friction

A- Rolling friction

Choose the term to fill in the blanks.

11. Force _____ has to be applied to change the direction of a moving object.

(moving, direction, force)

12. When an elephant drags a wooden log over the land, the forces that are applied

on the log are Muscular, Mechanical, & frictional ~~and~~ Force.

(muscular force, mechanical force, gravitational force, frictional force).

13. A ball was set rolling on a large table. If its motion ~~is~~ is to be changed, a force will have to be applied on it.

(Force, motion, gravitational)

14. The force of friction always acts against the motion.

(along, against)

15. One or more forces are acting in the following examples. Name them.

- (a) An object falling from a tall building. - Gravitational force
- (b) An aeroplane flying in sky. - Mechanical force
- (c) Squeezing sugarcane juice with a squeezer. - Muscular force
- (d) Winnowing foodgrain - Muscular force & gravitational force.

16. Convert the following quantities as indicated.

(a) 10 quintal = 1 metric ton.

(b) 1 cm = 100 metre.

(c) 1 mm = 0.001 metre.

(d) 1 yard = 3 ft

(f) 1 decametre = 10 metre.

(e) 1 decimetre = 0.01 metre.

(g) 1 hectometre = 100 m²

(h) 1 gram = 0.001 kg

(i) 1 mg = 0.000001 kg

(j) 1 lb = 453.592 g.

(k) 1 h = 60 s.

(l) 1 year = 31536000 s.

(m) 1 day = 86400 s.

(n) 1 decametre² = 100 m².

(o) 1 hectare = 10000 m².

(p) 1 km² = 1000000 m².

(q) 1 dm² = 100 cm²

(r) 1 cm² = 0.0001 m²

(s) 1 mm² = 1 × 10⁻⁶ m²

(t) 1 square yard = 0.836 m²

(u) 1 square ft = 0.0929 m²

(v) 1 acre = 4046.856 m²

2 mark questions.

17. What are the effect of friction?

A- Effect of friction are :

- Friction is a force that opposes motion between two touching surfaces.
- Occurs because the surface on any object is rough.

18. What are the affect force of friction & rolling friction?

A There are two main factors that will influence the total amount of friction:

- The roughness of the surfaces (or the "coefficient of friction")
- The force between the two objects.

Factors effecting rolling friction

- The shape of the wheel on the curved surface.

- Nature of the surface on which it is rolling.
- Speed of the wheel.
- The radius of the wheel.
- Nature of the material of the wheel or the curved surface.

19. Define static, friction, sliding friction & rolling friction.

A. Static friction is a force that hinders the movement of an object moving along the path. When two fabrics slide over each other, this friction occurs.

- The minimum force required to keep the ~~moving~~ body moving over a surface such that it moves equal distance in equal intervals of time is called the force of sliding friction.

- The minimum force required to roll a body on a surface is called the force of rolling friction.

- Nature of the surface on which it is rolling.
- Speed of the wheel.
- The radius of the wheel.
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20. What are the disadvantages of friction?

- A • Friction causes wear and tear in the moving parts.
- Friction produces heat.

21. Why does a matchstick catch fire when rubbed on the rough surface of the box?

A- On rubbing the matchstick in the rough surface the friction converts this work into heat.

22. The sole of shoes get worn after some time. Explain why?

A- The soles of our shoes get worn out after a period of time due to the effect of friction.

convert the following quantities as indicated.

- (a) 12 inch = Ft
 (b) 1 Ft = Cm
 (c) 20 cm = m
 (d) 4.2 m = Cm
 (e) 0.2 km = m
 (f) 0.2 cm = mm
 (g) 1 yard = m

Answers

- (a) 12 inch = 1 Ft
 (b) 1 Ft = 30.48 cm
 (c) $20 \text{ cm} = (1/100) \times 20 \text{ m} = 0.2 \text{ m}$
 $\therefore 20 \text{ cm} = 0.2 \text{ m}$
 (d) 1 m = 100 cm
 $\therefore 4.2 \text{ m} = 100 \times 4.2 \text{ cm}$
 $= 100 \times (42/10) \text{ cm} = 420 \text{ cm}$
 $\therefore 4.2 = 420 \text{ cm}$
 (e) 1 km = 1000 m
 $\therefore 0.2 \text{ km} = 1000 \times 0.2 \text{ m}$
 $= 1000 \times (2/10) \text{ m} = 200 \text{ m}$
 $\therefore 0.2 \text{ km} = 200 \text{ m}$
 (f) 1 cm = 10 mm
 $\therefore 0.2 \text{ cm} = 10 \times 0.2 \text{ mm}$
 $= 10 \times (2/10) \text{ mm} = 2 \text{ mm}$
 $\therefore 0.2 \text{ cm} = 2 \text{ mm}$

(g) 1 yard = 0.91m

3 Mark question

25. Define -

- Applied force - The force is applied on an object is called applied force.
- Tension force - The force exerted by a rope, cable, chain etc is called the tension force.
- Frictional force - The force that acts opposite to the motion of one object in contact with another object is called frictional force.

26. Compare properties of solids, liquids and gases.

A- Solid :

- A solid has a definite shape and size.

- A solid can not be compressed.
- A solid cannot flow.

Liquid:

- Liquids have a definite volume, but no definite shape because they acquire the shape of the container in which they are kept.
- Liquid are almost incompressible.
- Liquids can flow.

Gas:

- A gas has neither a definite shape nor a definite volume. It acquires the shape and volume of its container.
- Gases are highly compressible.
- Gases can flow.

27. Most substances can change from one state to another under different condition of temperature and pressure. Explain with examples.

A- We all know that pressure and temperature determine the state of a substance. We can prove this by many experiments. Example if we burn a candle the temperature will rise from which the candle will lose their capacity to hold tightly. And if we give a pressure to a candle the shape of the candle will change. This is how we can say that pressure and temperatures determine the state of a candle.

28. Why?

(a) Why machine are oiled time ~~time~~ 40 time?

A- Machine are oiled from time to time so that the devices inside it and mechanical part inside it get lubricant and this will also help machine to work smoothly and efficiently.

(b) An object thrown upwards comes

down after reaching a point.

A- When an object thrown upwards, it comes down after reaching a point. It is only because of gravitational pull of the earth.

(c) Powder is sprinkled on a carrom board.

A- The powder is sprinkled on a carrom board to reduce friction and smoothness of the surface acting as a lubricant for the carrom pieces to slide swiftly.

29. Explain increasing and decreasing friction with suitable examples.

A- The increase and decrease of a friction depends on the roughness of the object and surface that come in contact. The two surface in contact can be pressed harder to increase friction. The soles of shoes and tyre of the vehicles are treaded to increase

Friction. It also can be reduced by using lubricants or by making the surface smooth. In different way we can reduce by using oil, grease, ball bearing etc.

30. Cartilage is present in joints of our body, which helps in their smooth movement. If cartilage wears off, how would this affect the movement of joints.

A- Cartilage is a connective tissue connecting our joints, it provides flexibility and bears tensile strength. If the cartilage wears off then tensile strength would be hampered and flexibility will be reduced. We would have difficulty in moving, having joint pains and even serious orthopedic problems.

31. Define mass. State its (a) S.I. (b) C.G.S (c) F.P.S units. How are they related?

A- The mass of a body is the quantity of matter contained in it.

- The S.I. unit of mass is kilogram. In short form, it is written as kg.
- In CGS system, the unit is gram (g)
- In F.P.S system, the unit is pound (lb)

32. Convert the following quantities as indicated :

- (a) $200 \text{ kg} = \underline{0.2}$ metric tonne
- (b) $150 \text{ kg} = \underline{1.5}$ quintal
- (c) $10 \text{ lb} = \underline{4.536}$ kg
- (d) $250 \text{ g} = \underline{0.25}$ kg
- (e) $0.01 \text{ kg} = \underline{10}$ g
- (f) $5 \text{ mg} = \underline{5 \times 10^{-6}}$ kg

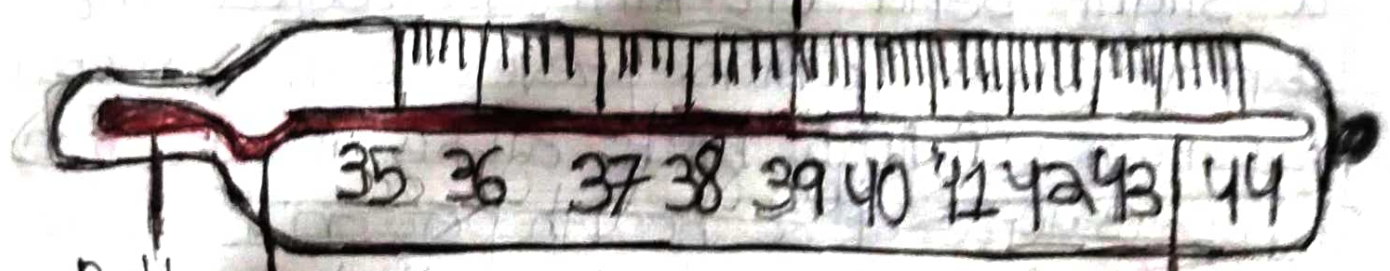
33. What is a clinical thermometer? State its special feature. Draw a labeled neat diagram of a clinical thermometer showing the range of temperature.

marked on it. What is the normal temperature of the human body? How it is indicated in a clinical thermometer?

A- Doctors use a special thermometer called the clinical thermometer for measuring the temperature of the patient's body. This thermometer has marking from 35°C to 43°C . It has a slight bend or kink is called the constriction which prevents the mercury from falling back all by itself. The temperature of a health person is 37°C and it is indicated in a clinical thermometer marked by a red colour.

33

Red arrow



Bulb

Constriction

Capillary tube

Clinical thermometer

34. Fill in the blanks.

(a) The S.I. unit of length is metre of time is second of mass is kilogram.

(b) $^{\circ}\text{C}$ is the unit of Celcius.

(c) 1 metric tonne = 1000 Kg.

(d) The zero mark in celcius thermometer is the melting point of ice.

(e) The thermometer used to measure the human body is called the clinical thermometer.

(f) The normal temperature of human body is 37°C or 98.6°F .

35. When crystal of potassium permanganate is placed in a beaker, purple colour spreads through out the water. What does this observation tell us about the nature of potassium permanganate and water? Explain with an activity.

A- Take 100 ml of water in beaker A and dissolve 2-3 crystal of potassium permanganate in it. You will get a deep purple coloured solution. Take 10 ml of this solution and mix it with 90 ml of water in Beaker B. You will observe that the colour of the solution is not as dark as the solution beaker A. Take 10 ml of the solution from beaker B and mix it with 90 ml of water taken in

beaker C. The colour of the solution becomes still lighter. Keep on diluting the potassium permanganate solution like this a number of times and you will find that the colour of the solution becomes fainter and fainter, but it is still pink. This experiment shows that a single crystal of potassium permanganate is made up of a large number of tiny particles which can colour a large volume of water.