GIRLS' HIGH SCHOOL & COLLEGE, PRAYAGRAJ

WORKSHEET-3

SESSION 2020 – 2021

CLASS 6 (A, B, C, D, E, F)

SUBJECT – PHYSICS

Note – Parents are expected to ensure that the student takes reference from a book or internet and thereafter answer the following questions .

Link- https://youtu.be/TTKlDueyI_U

SCIENCE

The knowledge and understanding of everything around us can be called science. We can say that " science is the knowledge gained through systematic observation and experiments." Thus,science includes the study of the earth, air, water, climate, plants, animals and everything that surrounds us.

Through centuries of study, we have accumulated a vast amount of knowledge that must be divided into smaller parts for convenience. So we can divide science into two broad groups-

1. The study of living things- this group is called *life science* and can be further divided into subjects such as zoology and botany.
2. The study of non-living things -this group is called *material science* and can be further divided into subjects such as physics, chemistry and geology.

PHYSICS

Generally we say that, physics is the study of nature and its laws. But this description can apply equally to other branches of science. So we say that physics is the study of matter and energy.Everything in this universe consists of matter and energy. Physics covers most of our activities and many of the things that go around us. We can study all this by understanding the laws of physics which apply to most of the ' happenings ' around us. Once we know the laws of physics we will understand why things happen the way they do.

PLEASURES OF PHYSICS

There are applications of physics in almost everything we see around us. All the uses of electricity, the different modes of transport and communication and most of the appliances of daily use have been made possible by application of physics in various ways.

MEASUREMENT

A quantity that can be measured is called a physical quantity. The length of a piece of cloth, the time at which the school begins and the volume of petrol are all physical quantities.

SOME PHYSICAL QUANTITIES

Some physical quantities are length, mass, time, area and temperature.

LENGTH:

Length is the distance between two points .The two points can be at the two ends of a ruler or at two corners of a room or at the top and the bottom of curtain and so on. When two points are far apart ,however we speak of distance rather than length. For example, we may say that the distance between two towns A and B is 450 km.

MASS:

Mass is a property of a physical body. The mass of the body is the amount of matter it contains. In everyday language, we often use the word ***weight*** instead of mass though weight and mass are two different quantities.

The weight of the body is the measure of the pull of the earth on it. This pull depends on the mass of the body. The greater the mass of the body, the stronger is the pull of the earth on it. In other words , the greater the mass of the body ,the greater is it's weight.

TIME:

Time is difficult to define. We become aware of it by changing positions or changing events. For example, the apparent movement of the sun across the sky or the change of day and night.

Man has measured time by natural events that occur at regular intervals. Such events are called periodic. The periodic motion of the earth around the sun has been used to define a year and the periodic motion of the moon around the earth has been used to define a month.

AREA:

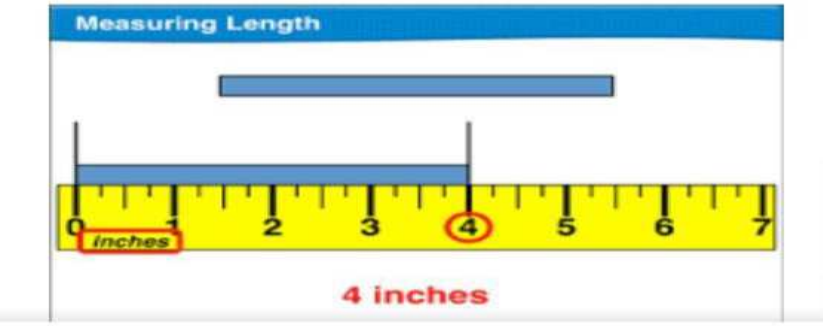
Area is the measure of the region inside a closed line. Circles, squares, rectangles, triangles are some examples of figures formed by closed lines. The area of such figures are calculated with the help of known formulae.

TEMPERATURE:

We say that an ice-cream is cold and a cup of tea is hot . The physical quantity used to measure the hotness or coldness is called temperature .***The temperature of an object (or substance) is a measure of its degree of hotness or coldness.***

MEASURING A PHYSICAL QUANTITY

To measure a physical quantity, we compare it with a known physical quantity. The known quantity is



called the *unit* of measurement .

Suppose we wish to measure the length of a room. The length of the room is a physical unknown quantity. We first need to choose a known standard length with which we can compare the length of room. One metre is a known quantity. Let us choose this as our unit. Then we compare the length of the room with this unit. Suppose we find that this length is 5.4 times the unit. We say that the length of the room is 5.4 metres.

The magnitude of physical quantity consists of a number and a unit.

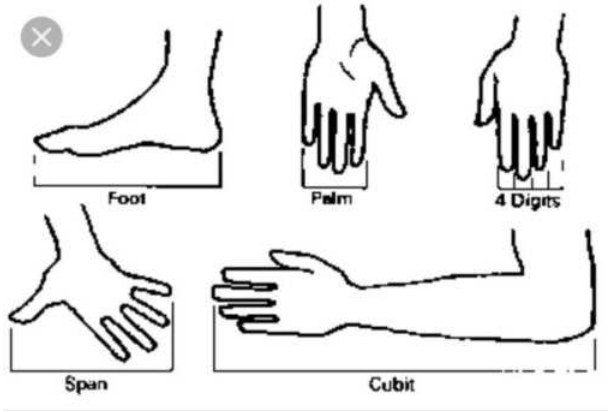
UNITS

A unit is a known measure of physical quantity with which physical quantities of the same kind are compared. The centimetre, metre, inch for example, are the units of length. The unit we use in a measurement is a matter of choice and convenience. For example, we measure the length of pencil in centimetres whereas the length of curtain in metres.

TRADITIONAL UNITS

In ancient times, different parts of the body were used to measure the length. Measurements using such units varied from person to person. The unit itself had different values in different regions. One such unit is gallon. One gallon represents different volumes in UK and USA.

Units that are not clearly defined and which do not have the same value everywhere are called nonstandard units. For example, handspan,cubit etc.



The use of nonstandard units leads to many problems. To avoid problems, we need a set or system of standard units which has the following characteristics –

1. The system of units should be used everywhere.
2. The units should be precisely defined and have the same value everywhere.
3. The units should be of convenient size.

Answer the following questions :

Q1. Answer in detail:

a. What is a physical quantity ? Describe any two physical quantities in detail.
b. Define nonstandard units.State the characteristics of system of standard units.
c. *The magnitude of physical quantity consists of a number and a unit.*Explain in detail.

Q2. Answer in short:

a. Name any three nonstandard units of measurement.
b. Mention any three applications of physics.
c. Differentiate between mass and weight.
d. What is temperature?
e. Define a unit.

Q3. Fill in the blanks:

a. The knowledge and understanding of everything around us is called……
b. The study of non-living things is called ……
c. Physics is the study of…….. and……..
d. A quantity that can be measured is called a……..
e. Weight and mass are two…… physical quantities .
f. The magnitude of a physical quantity consists of a……. and a……..
g. Circles and squares are formed by……. lines.
h. The greater the mass of the body, the……. is the pull of the earth on it.
i. The units of measurement that are not clearly defined are…….
j. The ……. of the body is the measure of the pull of the earth on it.

Q4. State true or false:

a. Metre is a traditional unit.
b. Mass and weight are same physical quantities.
c. Science is generally divided into three broad groups.
d. To measure a piece of cloth we use the unit km.
e. Area is a measure of the region inside an open line.

Q5. Choose the correct answer :

a. Life science can be further divided into –
    1. Zoology and botany
    2. Physics and chemistry
b. Periodic motion of the moon around the earth defines-
    1. A month
    2. A year
c. Cubit is a-
    1. Standard unit
    2. Nonstandard unit

d. Study of living things –
    1. Life science
    2. Material science
e. Events that occur at regular intervals are-
    1. Periodic events
    2. Non-periodic events

END