Pakistan School
Kingdom of Bahrain

*Class: 9

subject: physics

*Identify the place given in a picture:

* 1. Laboratory safety rules
* 2. Significant figure

* **Topic**

Objective

* At the end of this lesson students will be able to Describe laboratory safety rules.
* Find the Significant figure in given measurement.

*The students should know what to do in case of an accident. The charts or posters are to be displayed in the laboratory to handle situations arising from any mishap or accident. For your own safety and for the safety of others in the laboratory, follow safety rules given below:

I. Do not carry out any experiment without the permission of your teacher.

II. Do not eat, drink, play or run in the laboratory.

III. Read the instructions carefully to familiarize yourself with the possible hazards before handling equipments and materials.

*

*Laboratory safety rules:

*IV. Handle equipments and materials with care.

*V. Do not hesitate to consult your teacher in case of any doubt.

*VI. Do not temper with the electrical appliances and other fittings in the laboratory.

*VII. Report any accident or injuries immediately to your teacher.

*

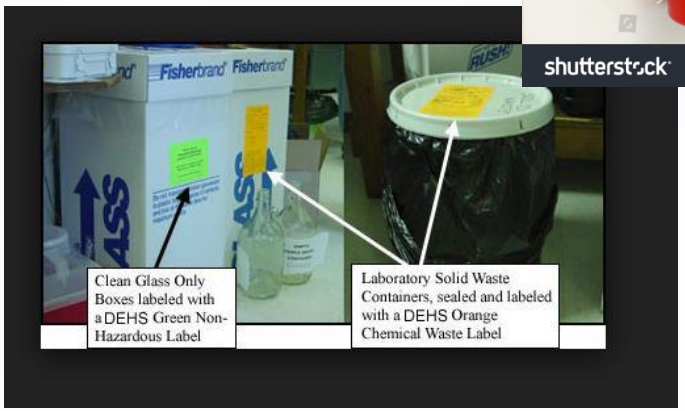
*LABORATORY SAFETY EQUIPMENTS:

*A school laboratory must have safety equipments such as:

I. Waste-disposal basket

II. Fire extinguisher

III. Fire alarm



a. First Aid Box

b. Sand and water buckets

c. Fire blanket to put off fire

d. Substances and equipments that need extra care must bear proper warning signs such as given in figure.

*SIGNIFICANT FIGURES:

*"All the accurately known digits and the first doubtful digit in an expression are called significant figures".

*Explanation:

*The value of a physical quantity is expressed by a number followed by some suitable unit. Every measurement of a quantity is an attempt to find its true value.

* The accuracy in measuring a physical quantity depends upon various factors:
* the quality of the measuring instrument
* the skill of the observer
* the number of observations made

* Accuracy in measuring a physical quantity

*Example:

- a. A student measures the length of a book as 18 cm using a measuring tape. The numbers 'of significant figures in his/her measured value are two. The left digit 1 is the accurately known digit. While the digit 8 is the doubtful digit for which the student may not be sure.
- b. Another student measures the same book using a ruler and claims its length to be 18.4 cm. In this case all the three figures are significant. The two left digits 1 and 8 are accurately known digits. Next digit 4 is the doubtful digit for which the student may not be sure.
- c,. A third student records the length of the book as 18.425 cm. interestingly; the measurement is made using the same ruler. The numbers of significant figures is again three, consisting of two accurately known digits 1, 8 and the first doubtful digit 4. The digits 2 and 5 are not significant.

*Conclusion:

*Conclusion: An improvement in the quality of measurement by using better instrument increases the significant figures in the measured result. The significant figures are all the digits that are known accurately and the one estimated digit. More significant figure means greater precision.

*Rules to Find the Significant Digits in a Measurement:

*

*The following rules are helpful in identifying significant figure

1. Non-zero digits are always significant.

*For Example 27 has 2 significant digits and 275 has 3 significant digits.

*2. Zeros between two significant figures are also significant.

* For Example 2705 has 4 significant digits.

* .

*

*

*Rules:

* 3. Final or ending zeros on the right in decimal fraction are significant
* For Example 275.00 has 5 significant digits.
*
* 4. Zeros written on the left side of the decimal point for the purpose of spacing the decimal point are not significant
* For Example 0.03 has 1 significant digit and 0.027 has 2 significant digits.
* 5. In whole numbers that end in one or more zeros without a decimal point. These zeros may or may not be significant. In such cases, it is not clear which zeros serve to locate the position value and which are actually parts of the measurement. In such case, express the quantity using scientific notation to find the significant zero.
* For Example 123000 in scientific notation it can be written as 1.23 x 10 has 3 significant digits.
*

* 5. In whole numbers that end in one or more zeros without a decimal point. These zeros may or may not be significant. In such cases, it is not clear which zeros serve to locate the position value and which are actually parts of the measurement. In such case, express the quantity using scientific notation to find the significant zero.
* For Example 123000 in scientific notation it can be written as 1.23 x 10 has 3 significant digits

*Plenary

1. We can drink and eat in the lab? Yes/No
2. Can we temper with electrical appliances and other fittings in the lab ? Why?
3. School labs must have ….. And ……for the safety of the students.
4. All accurately known digits and the …….doubtful digit in an expression are called ……
5. Digits other than zero are always significant .T/F
6. 2001 has ……significant figure.

1. Write some laboratory safety rules .

2. Question no 1.8 + 1.9 from the exercise .

Do it on the notebook.

Pg. no 26

*Home work


STAY HOME!
STAY SAFE!

*ALLAH HAFIZ