

ACTIVITY NO. -4

CONDITIONS REQUIRED FOR RUSTING OF IRON

Subject	Science
Class	X
Chapter/Unit	Metals and Non-metals
Topic	Rusting of Iron
Time	4-5 days
Nature of Activity	Group

What will I learn (Learning Outcome)?

To analyze and conclude the conditions necessary for rusting of iron and infer the type of change taking place during the reaction.

Skills:

Evaluating and Creating

What I have to do?

To study the conditions under which rusting of iron takes place.

What do I require?

4 test tubes, 3 iron nails without any coating and 1galvanised iron nail,tap water, oil, calcium chloride and 3 corks to seal the mouth of the test-tubes.

What do I need to know?

Corrosion is a slow process of eating up of the metals by attack of air, moisture or any chemical. Rusting of Iron is a very common example of an oxidation reaction taking place in our surroundings in the presence of both oxygen and moisture.

➤ Teacher's Activity

Teacher will:

1. divide the students in group of four each andbrief the activity
2. make the necessary arrangements for the activity.

How will I proceed?

➤ Student's Activity

1. Take four test tubes and place clean iron nails in test tube A, test tube B, test tube C respectively and galvanized nail in test tube D

2. Label these test tubes A, B,C and D
3. Pour some tap water in test tube A and seal it with the help of a cork.
4. Pour boiled distilled water in test tube B, add about 1 mL of oil and seal it with the help of a cork.
5. Put some anhydrous calcium chloride in test tube C and seal it with the help of a cork.
6. Pour some tap water in test tube D and seal it with the help of cork.
7. Leave these test tubes undisturbed for 4-5 days and then record your observations.

What have I observed?

S. No.	Test-Tube	Observations (undergoes rusting/does not undergo rusting)
1	Test-Tube A	Iron nail _____ in Test-Tube A
2	Test-Tube B	Iron nail _____ in Test-Tube B
3	Test-Tube C	Iron nail _____ in Test-Tube C
4	Test-Tube D	Galvanized iron nail_____ in Test-Tube D

What have I learnt?

Thus, I can conclude that rusting of iron takes place both in presence of _____ and _____.

What am I curious to learn?

- Let us take one spatula of Iron filings and add them to a clean and dry test-tube consisting of tap water. Leave it undisturbed for 4-5 days. Let's record observations of daily basis. Does Iron filing undergo the rusting process? Does it take the same amount of time as taken by an Iron nail?

Let me evaluate myself

Q1. Define rusting. How is the process different from Corrosion?

Q2. Predict the chemical equation depicting rusting of iron.

Q3. On what basis do you infer that rusting of iron is a chemical change?

Q4. What is the role of (a) oil in test tube B and (b) calcium chloride in Test-Tube C?

Q5. Justify your observation recorded in test-tube D with galvanized iron nail.
