INSTRUCTIONS FOR HOLIDAY HOMEWORK (CLASS VIII)

Subject: CHEMISTRY

1. BIO GAS PLANT:
   - Material required – Clay, thermocol sheet, plastic straw, cardboard, pastel sheet, artificial hut, trees etc.
   - Make a village scene and show a bio gas plant and how it is used as a fuel in homes and also for street lighting.

2. WATER HARVESTING:
   - Material required – Thick thermocol sheets, cardboard, transparent plastic straws, two small containers, poster colours.
   - Make a model of rainwater harvesting and refer to the diagram shown.
3. FIRE EXTINGUISHER:

- Material required – One can with a tight fitting lid, a nail, sodium bicarbonate powder, one-cup vinegar, red poster colour or pastel sheet.
- Make a saturated solution of sodium bicarbonate in water and pour it in the can. Take some vinegar in a small cup and put it in the can. Do not allow the vinegar and sodium bicarbonate solution to mix at this stage. Place the lid, which has a hole about 3mm in diameter. Refer to the diagram shown.

![Diagram of fire extinguisher](image)

4. BIO GEO CHEMICAL CYCLES:

- Material required – Thermocol sheet, LEDs, glaze paper or fluorescent sheets and markers.
- Using thermocol as the base, draw the cycle with 3D effect. Arrows can be highlighted by using LEDs. Refer to the diagram shown below.

![Diagram of biogeochemical cycles](image)
5. MOLECULAR STRUCTURE OF SOLIDS, LIQUIDS AND GASES:

- Material required – Thermocol sheet or hard cardboard, plastic balls or ping pong balls and fevicol.
- Using thermocol as the base, show the arrangement of molecules in solids liquids or gases with the help of balls, which represent the molecules. Refer to the diagram shown.
Subject: PHYSICS
Note - Use suitable dry cells for the models. DO NOT plug in your circuits in electric sockets. Work under the supervision of an adult.

1. To make tester

Use Dry Cells (4-5 V), cell holder, connecting wires, LEDs (light emitting diodes), thermocol
Assemble the circuit as per the given circuit diagram on thermocol to be used for checking conduction.

TESTING CONDUCTION OF ELECTRICITY THROUGH LEMON JUICE
2. To make solar cooker.

Use black painted box. (of dimensions 40 x 30 x 15 cm), black painted bowls. Plastic sheet (in place of glass sheet to show greenhouse effect) and mirror as per the diagram and assemble them.
3. To show communication through communication satellite

Use thermocol sheet, LEDs, cells, connecting wires, cell holders, and plastic balls, cardboard. Make ground stations with the help of thermocol and plastic balls so as to show the transmission as shown in the diagram. Use LEDs to show transmission and reception of signals.
4. To make series and parallel arrangement of components in an electric circuit
Use dry cells, cardboard, LEDs, cell holders, connecting wires & switches and
Assemble the circuit on cardboard following the given circuit diagram

5. Harnessing wind energy through windmill.
Use cardboard, dry cells (4-5 V), LEDs, thermocol, cell holder, metallic sheet (to make fans of Windmill)

Make an artificial village scene including huts and street lights to show that when the fans of windmill rotate, electricity is produced which is used for various purposes
Subject: BIOLOGY

1. Structure of virus and bacteria
   - Materials required – Thermocol, cardboard, plasticine, pastel sheets (colored), pipes or straws, cylindrical cardboard (in food foil).
   - For structure of virus assemble a hexagon made of cardboard for head, cylindrical cardboard for body and pipes or straws for tail. Use flag labelings of 2 x 8 cm and write in bold letters.
   - Roll the plasticine to make cell wall and cell membrane of bacteria. Make components using thermocol or plasticine and paint them in their respective colours. Assemble them on thick cardboard base. Use flag labelings of 2 x 8 cm and write in bold letters.

2. Structure of plant and animal cell
   Materials required – Thermocol, cardboard, plasticine, paint, pastel sheets
Use plasticine or paper Mache technique makes all components of plant or animal cell. Paint them in their respective colors. Assemble them on theromocol cut out showing outer structure of plant and animal cell and paste it on a thick cardboard base. Use flag labelings of 2 x 8 cm and write in bold letters.

3. Cloning technique

Sector - 8, Phase - I, Dwarka, New Delhi – 110077

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Materials required – Thermocol, cardboard, plastic bowls, pastel sheets
Show step by step the cloning technique done for DOLLY as mentioned in the diagram. Draw the diagrams on pastel sheet and paste it on thermocol, take the cut out and assemble on a thick cardboard base. Use flag labelings of 2 x 8 cm and write in bold letters.

IVF (in vitro fertilization)
Materials required – Thermocol, cardboard, pastel sheets

- Show step by step the ivf technique done for TEST TUBE BABIES
- Draw the diagrams on pastel sheet and paste it on thermocol, take the cut out and assemble on a thick cardboard base.
- Use flag labelings of 2 x 8 cm and write in bold letters.

5. Ecological Pyramids
   * Materials required – Thermocol, cardboard, plasticine
* See the figure and make the pyramids using thermocol or plasticine. Make arrows using cardboard pieces of 2 x 8 cm. Use flag labelings of 2 x 8 cm and write in bold letters.