**Day 1**

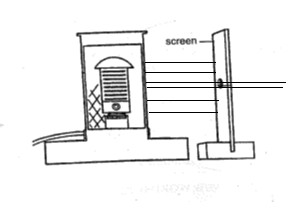
Heat and Air 2

*Q.1. flame. Purple, upwards, purple, crystal, risen*

*Q.3. 30, 60, bottom, upwards*

**Day 2**

Heat and Air 3

Q.1.

Q.4. No, you should not feel heat when heat rays are blocked by the book.

Q.5. No heat rays cannot pass through a book.

Q.6. Yes, heat travels in a straight lines.

**Day 3**

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Q.1. a) *dull surfaces, you can see this if you compare dull aluminium with polished aluminium on the diagrams.*

*b) dark surfaces, you can see this if you compare white washed wall and red brick wall, on the diagrams.*

*Q.2.*

*Q.5. White washed walls are useful as they reflect a lot of heat, thus keeping their houses cool.*

**Heat and Air 4**

Q.1. *The blackened side.*

*Q.2. dark sufaces emit (give out) heat better than shiny surfaces.*

*Q.3. The pin on the blackened sheet falls off first.*

*Q.4. The blackened surface absorb heat faster.*

*Q.5. Blackened surfaces absorb heat faster.*

*Q.7. Skin is the better absorber of heat.*

*Q.8. Solar panels have dull black surfaces to absorb a lot of heat. Firefighting suits are shiny to reflect heat keeping the fire fighter cool when they are exposed to heat.*

**Day 4**

1. Does the ball go through the ring before it is heated?*yes*
2. After heating the ball for 5 minutes, can the ball still go through the ring?*No*
3. What has the heat done to the ball?*The heat causes the ball to expand. (get bigger)*
4. A solid*expands(gets bigger)*  when it heated and *contracts(gets smaller)* when it is cooled.

**Day 5**

1. Describe what happens to the red drop of oil when the bottle is placed in: a) hot water b) cold water.
2. *The red drop of oil moves up the straw.*
3. *The red drop of oil moves down the straw.*
4. Explain why the drop of oil moves: a) up b) down.
5. *The drop of oil moves up the straw because the gas expands (increases in volume) and moves up the straw, pushing the drop of oil upwards.*
6. *The drop of oil moves down because the gas contracts (decreases in volume) causing the drop of oil to move down showing that the gas is contracting.*
7. This experiment proves that gases *expand* when heated and *contract* when cooled.

**Day 6**

1. Describe what happens to the red coloured water, when the small bottle is placed in hot water.

*The colored water rises up the straw.*

1. Explain what is happening to the volume of the coloured water when itis placed in hot water.

*The volume of the liquid increases.*

1. This shows that liquids *expand* when they are heated.
2. Describe what happens to the coloured water when the bottle is placed in cold water.

*It moves down the straw.*

1. Explain what is happening to the volume of the coloured water, when it is placed in cold water.

*The volume decreases*

1. This shows that liquids *contract*  when they are cooled.

**Day 7**

1. Write down one difference between a physical and a chemical change.

*A physical change does not produce a new substance, but a chemical change produces a new substance.*

1. What can you say about the starting and ending materials in physical change.

*They starting and ending materials are the same, even though they may look different.*

1. What can you say about the starting and ending materials in a chemical change.

*The starting and ending materials are different because a new substance is formed.*

1. What are the signs that determine a chemical change?

*Light, heat, colour change, gas production, odour, sound.*

1. Write down 3 examples of a physical change.

*Cutting of paper, water turning into ice, stretching of a rubber band.*

1. Write down 3 examples of chemical changes.

*Burning of wood, water evaporation, burning of paper.*

1. Before heating, what is the colour of the copper sulphate?

*Blue*

1. After heating, what is the colour of the copper sulphate?

*White*

1. Describe the colour change when water is added to the white copper sulphate.

*Blue*

1. Does the heating of copper sulphate cause a chemical or a physical change?

*Reversible chemical change.*

**Day 8**

1. *The night light inside the jar goes off.*
2. *The uncovered night light does not go off, it keeps on lighting.*
3. *Droplets of water forming inside the jar.*
4. *The night light inside the smaller jar.*
5. *Yes the size of the jar affects the burning time.*
6. *Because the smaller jar contains less air, compared to the larger jar which contains more air.*
7. *The water rises up inside the jar.*
8. *The amount of air decreases, because it is being used up by the night light, for burning.*
9. *Copy information.*
10. *Oxygen is the gas that is being used up for burning*