Why do we need to breath?

- Cells need energy
- Cells can make energy using glucose and oxygen

Equation: 

Where is oxygen found?

- About 20% of the air we breath in is oxygen
- We need to get this oxygen to cells
- Respiratory system is the system that delivers _________ and eliminates ___________ from the body

1. Nasal and Oral Cavity

- Breath in air and ___________ carbon dioxide
- Nose traps dust
- Oral and nasal cavity warms air and makes it humid
- Epiglottis (trap door) folds over trachea when we swallow to _________
- Air travels from here to the trachea

2. Trachea and Bronchi

- The trachea has rings of cartilage – why?
- It transports air from oral cavity to lungs
- The trachea branches into __________
- Each bronchi enters a lung
- In the lung the bronchi branch even further into _________

3. Bronchioles and Alveoli

- Each bronchiole ends in an air sac, called an
- Alveoli are very thin (________) and are surrounded by _________
4. Gas Exchange

- In the alveoli, oxygen enters the capillaries (blood stream) and is exchanged for ________________ which enters the lungs for exhalation.

Diffusion

- The process of gas exchange is always by diffusion between the external and internal environment of the organism.

Gas Exchange

- Gas exchange relies on ________________, therefore concentration gradients need to be maintained.
- This is done by ________________

Multicellular Organisms

- Large organisms rely on specialised respiratory surfaces.

Features of Respiratory Surfaces

- Large ________________
- Thin, moist and easily penetrable surface.
- Adequate ventilation.
- Efficient transport of carrier fluid (blood) across respiratory surface.

Alveoli

- The site of ________________
- Increases the surface area for gas exchange.
6. The Diaphragm and Breathing

- The diaphragm is a large muscle that pulls the lungs down and pushes them up for inhalation and exhalation, respectively.

The Circulatory System

- Is intimately connected with the respiratory system.
- Why?
- What are some other functions of the circulatory system?

1. Blood

- Copy the flow chart from the board.

2. Blood vessels

- Haemoglobin and oxygen bind in a reversible reaction.
- Blood is transported in blood vessels, of which there are three main types:
  - Arteries: carry blood ________ from the heart.
  - Veins: carry blood ________ heart.
  - Capillaries: _________________________
- Complete this table:

<table>
<thead>
<tr>
<th>Arteries</th>
<th>Veins</th>
<th>Capillaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. The Human Heart

- The heart is a large _______ _____ that forces blood around the body.
- It has ___ chambers: __ _ atriums and ___ ventricles
- There are two phases:
  - Deoxygenated blood enters the heart via the vena cava
  - The heart then pumps this blood to the lung
  - What happens here??
  - Oxygenated blood then returns from the lungs to the heart.
  - The heart now pumps this blood around the body
- https://www.youtube.com/watch?v=Ho4d3JCLCE
- Label your diagram of the human heart

The ultimate goal

Practice!

- Online interactive