- **Support provided to colleagues for implementation of practical work, lessons, and revision throughout the unit**

applicant

[redacted] 21/04/2021 9:37 am Edited

08 Science - just FYI I have updated my planner in the teacher OneNote, apologies I forgot how much slower Year 8 are than senior students, I have pushed another lesson in for microscopes because its going to take time for them to learn how to focus on things and I didn't take into account the slower pace for teachers to get around to assist prac groups. I have also had to ditch the lesson I left spare for Reach, unsure if its going ahead and I needed the lesson to fit the content in. 🙂 I hope I didn't cause too much stress to any of you.

Collapse all

colleague

[redacted] 21/04/2021 10:46 am

I have just confirmed with [redacted] that we will not be continuing with the Reach quiz this year - can this be amended in your planners please? I will also communicate with parents keep them informed of the potentially sensitive topics involved this term.

colleague

[redacted] 21/04/2021 12:20 pm

08 Science - I have added some additional worksheets on Microscopes if you wish to use them.

Additional microscope worksheets (Web view)

2.1 – support to implement engaging teaching and learning

applicant

[redacted] 23/04 12:53 pm

Measuring field of view

Hi 08 Science - I had some trouble today getting the kids to measure the field of view, it was too hard to get the little thin plastic rulers lined up in the right place on the microscope stage, we ended up giving up and I gave them the measurements to graph. In case you also need a "Plan B", the field of view measurements for a standard school microscope look like this FYI:

Ocular (eye) lens magnification	Objective lens magnification	Total magnification	Diameter of field of view (mm)
X 10	X10	X 100 →	1·5mm (1500 µm)
X 10	X40	X 400 →	0·45 mm (450 µm)
X 10	X 100	X 1000 →	0·15 mm (150 µm)

See less

colleague

[redacted] 23/04 4:28 pm

The little grid slides are good for this as they count the squares seen at each magnification

applicant

[redacted] 6/05 5:36 pm

Demo: Changing air prac

08 Science - I asked the laboratory staff about the changing air prac in the Pearson textbook where you blow through a straw into an indicator solution to turn the indicator another colour in response to an acidic change from the CO2 in your expired breath. [redacted] suggested that a demo would be sufficient, and offered to pre-test it. For a "few minutes" of breathing she got this colour change result:

It looks nice but to be honest I don't think the Year 8s have a good enough understanding of acids, pH or indicators to really be able to understand that this is "proof" of CO2 in the gasses they breathe out. Personally I think I will leave it out, but if you like it then it can be booked as demo.

See less

Collapse all

colleague

[redacted] 6/05 7:18 pm

Thanks [redacted] - I'm happy to leave it out 🙂

applicant

colleague

[redacted] 7/05 7:14 am

I will leave it out. Thaks.

applicant

applicant

[redacted] 12/05 11:59 am

1

Pasco heart rate sensors

08 Science - FYI [redacted] has advised, if you are interested, they have four Pasco heart rate sensors should you wish to try use them for the heart rate/breathing/exercise prac.

applicant

[redacted] 18/05 8:50 am

1 2

Reproduction lessons - coming soon!

Good morning 08 Science - I hope you are travelling along OK with the Biology lessons, its such a tight term to pack a lot of content into. The lessons on reproduction are coming soon to the teacher OneNote. If you have taught this topic before you will notice that this year it is more of a condensed version than past years, really sticking to the structure and function of the reproductive systems of males and females, and looking briefly at puberty/menstruation, and then a little about conception, pregnancy and birth, as per the textbook really. I have made an executive decision to not do a whole lesson on flowering plants. Flowering plants will get a mention in the asexual/sexual reproduction lesson instead. Personally I'm running a little behind schedule on where I wanted to be so I need to free up that lesson, so hopefully that might benefit some of you as well if you are also needing a little more teaching time. Please just ask if you have any questions.

See less

colleague

[redacted] 20/05 11:55 am

1

Thanks so much [redacted] - your lessons have been great & are very much appreciated! 🙂

applicant

Reply

2.1 – support to implement engaging teaching and learning

applicant

[redacted] 20/05 5:21 pm

3

Year 8 exam block and revision

08 Science - yay, the exam block timetable has been revealed and Yr 8 exams start on Monday Week 9, not at the end of Week 8 like the calendar says. This is good for me because I pick up a whole extra double! 🕺 I will use four lessons in Week 8 for revision, I have added some revision resources to the OneNote, but I'm still collating those, please feel free to just jump in and add any revision resources you already have, this would be helpful. I will just add pages as choices of things you might like to do for revision activities, whatever suits you and your class. I have added one further lesson page on drugs and pregnancy as an SHE topic, should you find yourself with time to spare.

- **2019 version of respiratory system lesson and practical activity**

02/09 Respiratory system

Monday, 3 September 2019 9:56 AM

Objective

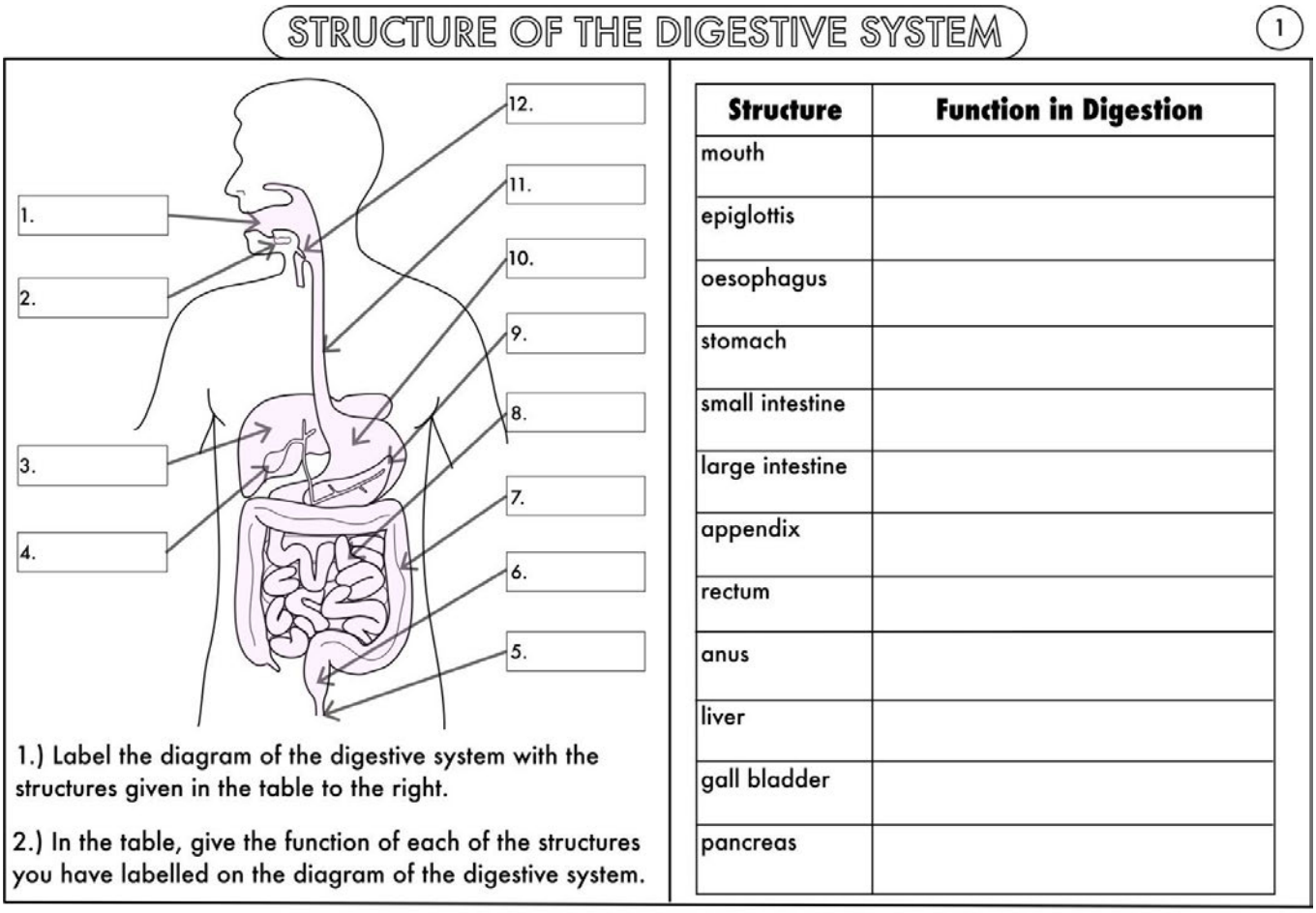
- Describe the purpose and structure of the respiratory system

Homework:

- Read chapter 3.2 + LBS 3.2 + UR Q1,3,7,8,11,15- due Friday 6th September

Activity 1 - Review last lesson

Label the structure of the digestive system



STRUCTURE OF THE DIGESTIVE SYSTEM

1

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.

1.) Label the diagram of the digestive system with the structures given in the table to the right.

2.) In the table, give the function of each of the structures you have labelled on the diagram of the digestive system.

Structure	Function in Digestion
mouth	
epiglottis	
oesophagus	
stomach	
small intestine	
large intestine	
appendix	
rectum	
anus	
liver	
gall bladder	
pancreas	

Drag and drop activity for the digestive system
http://yakult.com.au/resources/flash/flash_digestiveDD100.html

Activity 2: Watch video The Respiratory system

https://www.youtube.com/watch?v=hc1YtXc_84A

Activity 3: Complete Respiratory system PowerPoint - student to fill in notes and questions below

Respiration

- Respiration is the chemical changes in cells that release . Often **summarised** as

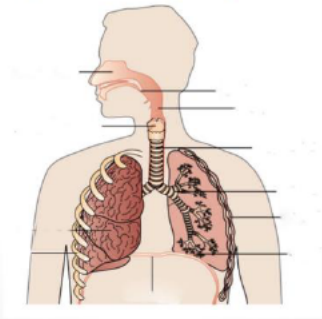
$$C_6H_{12}O_6 + \square \rightarrow 6H_20 + \square + \square$$

(glucose + → water + + e)

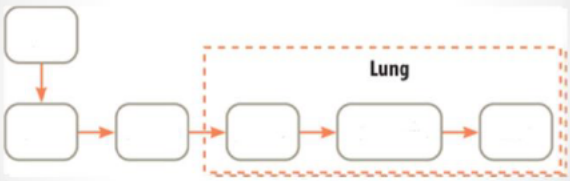
- The..... system takes in air & makes .....available to all of the cells of the body
- This system also collects .....gas produced by the cells & allows it to be expelled from the body via the lungs

Structure of the Respiratory System

Label this diagram



Flow of oxygen

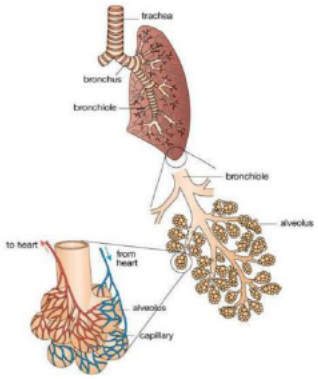


Parts of the respiratory tract

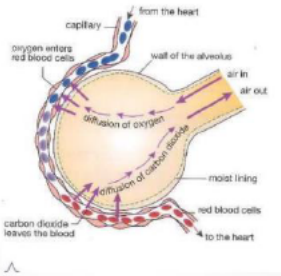
- What happens to the air in the nose?
- What is the function of the **hairs** in your nostrils?
- What are the **tiny hairs** in your nose called?
- What is the function of **mucus** in your nose?
- Why are the **cartilage rings** in your **trachea** so important?

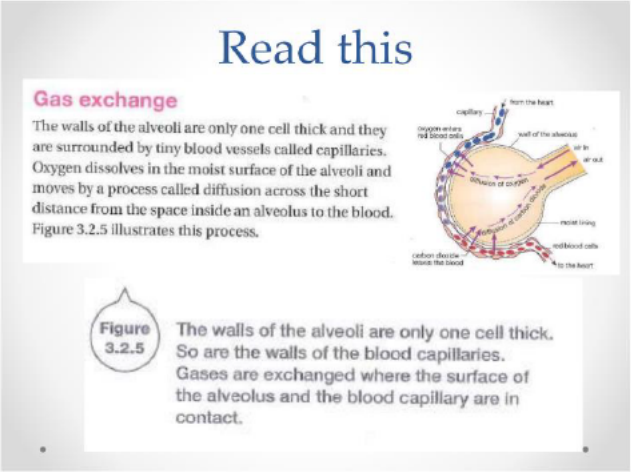
Structure of the Alveoli

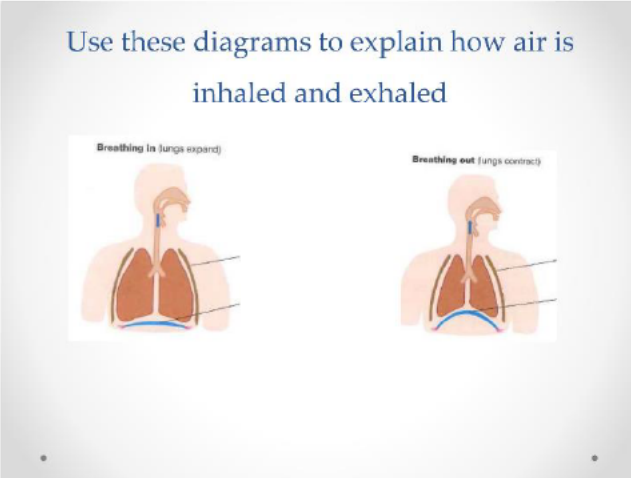
- Alveoli are _____
- There are 500 million in your lungs
- The shape of alveoli creates a large _____ _____
- Why is this an important feature?

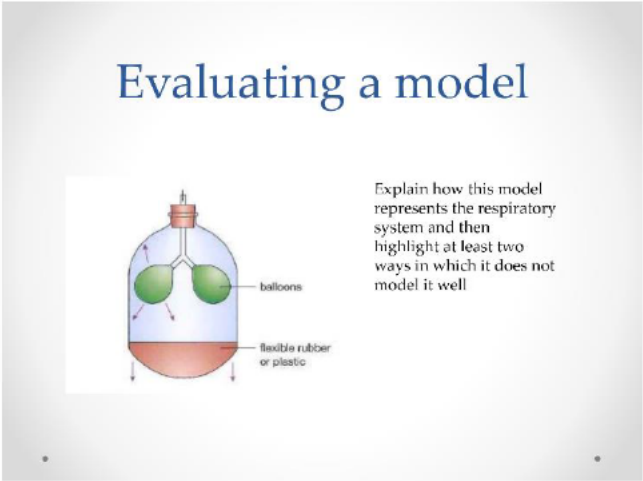


Gas Exchange









For each of the Sections below you need:

a. A short description about the organ's main function
b. Describe how the organ carries out this function

Organ	A short description about the organ's main function	Describe how the organ carries out this function
Nasal cavity		
Pharynx		
Larynx		
Trachea		
Bronchus		
Bronchiole		
Alveoli		
Diaphragm		
Rib		

Practical: Breathing and exercise

3 • Breathing rate

Questioning & Predicting | Evaluating

Purpose

To test the effect of exercise on breathing rate.

Hypothesis

What do you think will happen to your breathing rate as you exercise—will it stay the same, increase or level out? Before you go any further with this investigation, write a hypothesis in your workbook.

Materials

- as selected by students

SAFETY

A risk assessment is required for this investigation.

Do not test students with asthma, as the exercise might trigger an attack.

Procedure

1. Design an experiment that tests the effect of exercise on breathing rate.
2. Brainstorm in your group and come up with several different ways to investigate the problem. Select the best procedure and write it in your workbook. Draw a diagram of the equipment you will need, and construct a table in which you intend to record your results. Give your table a title.
3. Before you start any practical work, assess your procedure. List any risks that your procedure might involve and what you might do to minimise those risks. Show your teacher your procedure and your assessment of its risks. If your teacher approves, then collect all the required materials and start work.

Hints

- Choose an exercise that can easily be done for 5 minutes.
- Use the STEM and SDI template in your eBook to help you plan and carry out your investigation.

Results

Record your results in your table.

Review

1. a Construct a conclusion for your investigation.
   b Assess whether your hypothesis was supported or not.
2. Use a word equation to help explain why you need more oxygen as you exercise.
3. Evaluate your procedure. Pick two other prac groups and evaluate their procedures too, identifying their strengths and weaknesses.

- **Respiratory system lesson resources (sufficient for double period) updated for the 2021 Biology unit, shared with and used by colleagues**

Teacher 08 Science
Biological Sciences

Administration | Cells and Body Systems 2021 | Exam Revision

2.1 - support colleagues using current and comprehensive knowledge of content and teaching strategies to implement engaging learning and teaching program
3.4 – assist colleagues to select and use resources to engage students in learning

Respiratory system

Monday, 3 May 2021 9:56 AM

Lesson objectives:

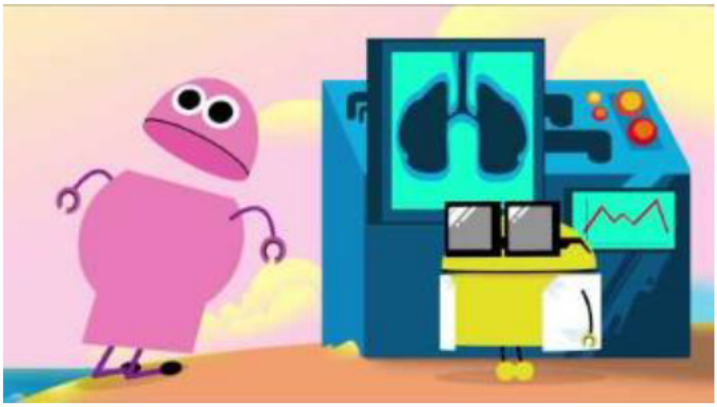
- Understand the connection between respiration (breathing) and cellular respiration
- Describe the structure of the respiratory system
- Describe the structure and function of the alveoli
- Explain how the structures of the lungs enable gas exchange to take place
- Explain how gas exchange occurs due to diffusion and difference in concentrations of oxygen and carbon dioxide

Breathing - what's it good for?

1.1 – strategy suits intellectual characteristics of Year 8 students

- ☐ Listen to (and watch) the following song, when it is finished write down five things you know (or just learned!) about the respiratory system in the space below:

Body Songs: "When You Breathe (Lungs)" by StoryBots | Netflix Jr (1:12 min)



3.4 – assist colleagues to select and use engaging ICT resource
4.5 – model strategy for safe and responsible ICT use

Respiration, respiratory system, cellular respiration?

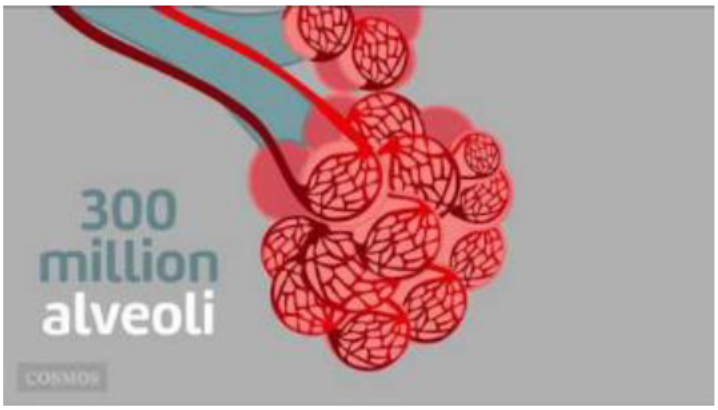
Breathing, for the exchange of oxygen and carbon dioxide, occurs in the **respiratory system**.

However, don't confuse respiration (breathing) with cellular respiration.

- In physiology, **respiration** is the breathing in of oxygen from the outside environment, its transport to the cells within tissues, and the removal of carbon dioxide in the opposite direction.
- **Cellular respiration** refers to the chemical reaction in cells that uses oxygen and releases carbon dioxide

3.3 – strategy to develop knowledge
2.5 – effective strategy for literacy achievement
3.5 – assist colleagues to select verbal and non-verbal communication

Gas exchange



3.4 – assist colleagues to select and use engaging ICT resource
4.5 – model strategy for safe and responsible ICT use

3.3 – strategy to develop knowledge
1.1 – strategy suits intellectual characteristics of Year 8 students
2.5 – effective strategy for literacy achievement

glucose + oxygen → carbon dioxide + water vapour

Respiration and cellular respiration are linked because:

- When we breathe in, the r_____ system takes in air which enables o_____ to be available to all cells of the body.
- Oxygen is a reactant in the chemical process called c_____ r_____. In this process oxygen combines

with g_____ to make e_____, and also produces the waste product of c_____ d_____.

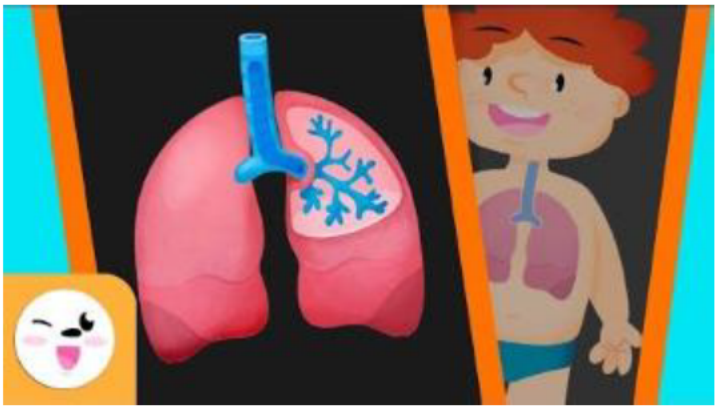
- The respiratory system enables carbon dioxide produced by cells to be expelled from the body via the lungs when we breathe o___.

3.3 – strategy to develop knowledge

Structure of the respiratory system

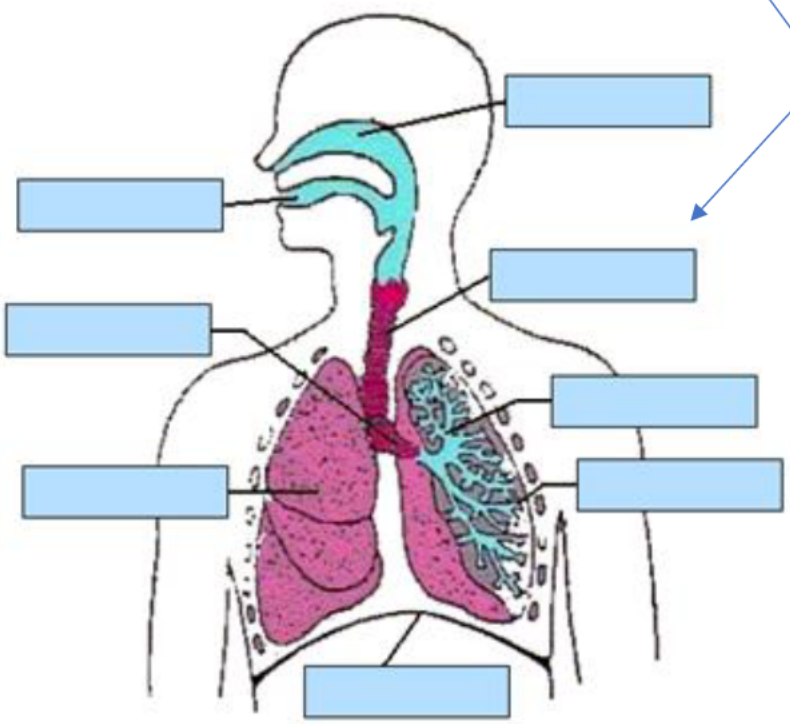
- ☐ Watch the video and as you watch label as many structures of the respiratory system as you can on the diagram below, using the given word bank:

Travel through the Respiratory System - Fun Science for Kids (2:20 mins)



3.4 – assist colleagues to select and use engaging ICT resource
4.5 – model strategy for safe and responsible ICT use

alveoli	bronchus	bronchioles	diaphragm	lung	mouth	nasal passage	trachea



Interactive Science Worksheets © by Alan & Hui Meng

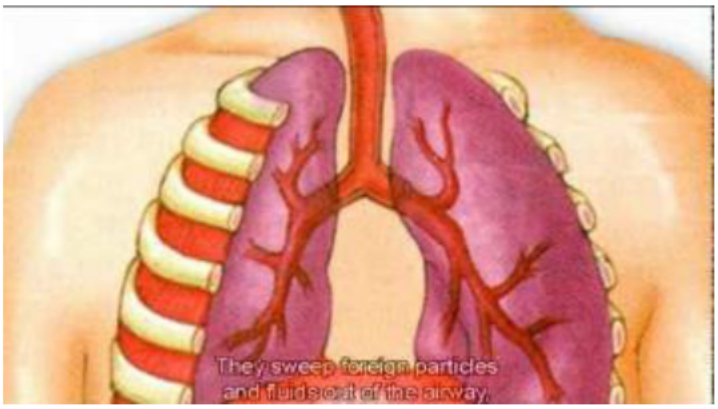
3.3 – strategy to develop knowledge

Drag and drop version:
http://www.vtaide.com/png/respiratoryF.htm

3.4 – engaging ICT resource

Functions of the parts of the respiratory system

The Respiratory System (3:28 mins)



3.4 – assist colleagues to select and use engaging ICT resource
4.5 – model strategy for safe and responsible ICT use

- Complete the table below by matching the structure of the respiratory system to its function.

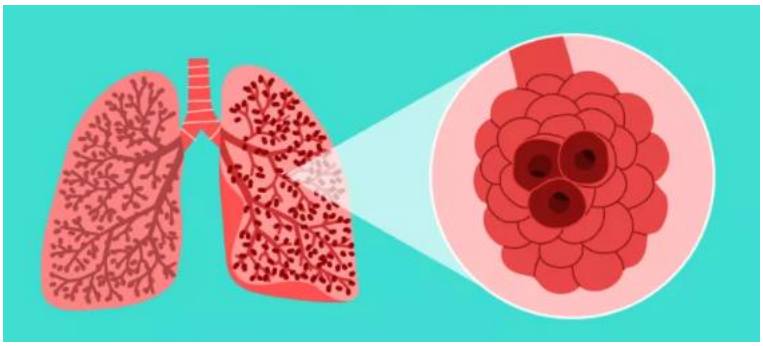
Nose cavity		Large, branched tubes leading to the lungs from the trachea
Trachea		Dome shaped muscle that helps to expand and contract the lungs
Larynx		The organ of the respiratory system, where gas exchange occurs
Alveoli		A cartilage-ringed tube that carries air to the lungs: the "windpipe"
Lungs		Tiny air sacs that are the site of gas exchange
Diaphragm		Warms, moistens and filters inhaled air
Bronchus		Smaller branched tubes that enable gas exchange deep in the lungs
Bronchiole		Produces our voice, a.k.a. "voice box"

3.3 – strategy to develop knowledge
2.5 – effective strategy for literacy achievement

Where does an oxygen molecule go?

Oxygen molecules enter our body when we inhale air into the **mouth** or **nose**. The **oxygen-rich air** travels down the **trachea** and then into one of the two **lungs** via the right or left **bronchus**. From there, the air is directed through smaller and smaller passages, called **bronchioles**, until it finally enters an individual **alveolus**.

Alveoli (plural) are an important part of the respiratory system whose function it is to exchange oxygen and carbon dioxide molecules to and from the bloodstream. These tiny, balloon-shaped air sacs sit at the very end of the tree-like bronchioles and are arranged in clusters throughout the lungs.



3.5 – assist colleagues to select non-verbal communication strategy

From < https://www.verywellhealth.com/what-are-alveoli-2249043>

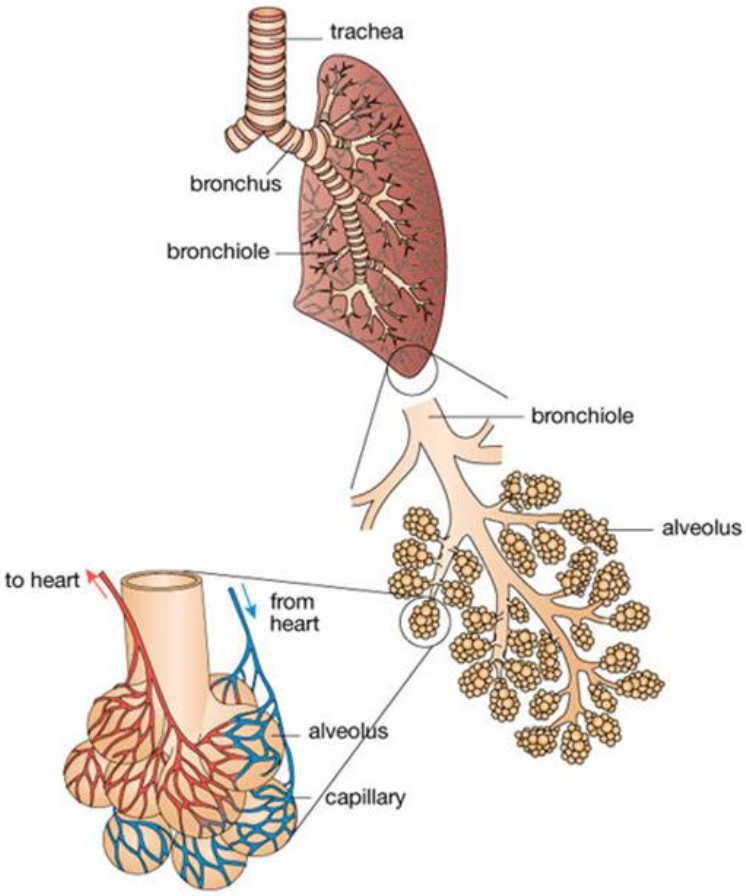
Alveoli have certain structures that make them perfect for their function:

- **A large number of alveoli, arranged in bunches, creates a large surface area**

> One cubic millimeter of lung tissue contains around 170 alveoli. While the total number can vary from one person to the next, there are literally millions within the human lungs spanning a surface area of roughly 70 square meters.

The more surface area there is in your lungs, the more gas exchange can happen at any one time!

- **Alveoli are always very close to capillaries** in the blood circulation. A capillary is the smallest sized blood vessel in your circulatory system. Oxygen and carbon dioxide can therefore be easily exchanged with the circulatory system. For example, oxygen diffuses from the alveoli to the capillaries, where it enters red blood cells, and the flow of blood carry oxygen to cells where it is needed.



- **The alveoli walls are very thin**, (one cell thick) allowing the relatively easy passage of oxygen (O_2) and carbon dioxide (CO_2) between the alveoli and capillaries (the walls of capillaries are also one cell thick). Movement of substances in the body is usually most efficient when the distance for substances to travel is small.

Oxygen molecules diffuse through a single cell in an alveolus and then a single cell in a capillary to enter the bloodstream. At the same time, carbon dioxide molecules are diffused back into alveolus where they are expelled out of the body through the nose or mouth.

From < https://www.verywellhealth.com/what-are-alveoli-2249043>

- **Alveoli are lined with moisture** - if you breathe out against a glass surface you will see the water vapour on your breath condense on the glass. A moist surface inside the lungs assists gases to be dissolved into body fluids.

3.3 – strategy to develop knowledge

☐ Summarise from the lesson how the features of the alveoli enable efficient gas exchange to take place

Feature	How this facilitates gas exchange
Large quantity of alveoli in each lung	
Alveoli walls are one cell thick	
Network of blood capillaries surround alveoli	

Gas exchange

3.3 – strategy to develop knowledge

Gas exchange between the alveoli and the capillaries happens due to the process of **diffusion**.

Diffusion is the movement of substances from an area of high concentration to an area of low concentration.

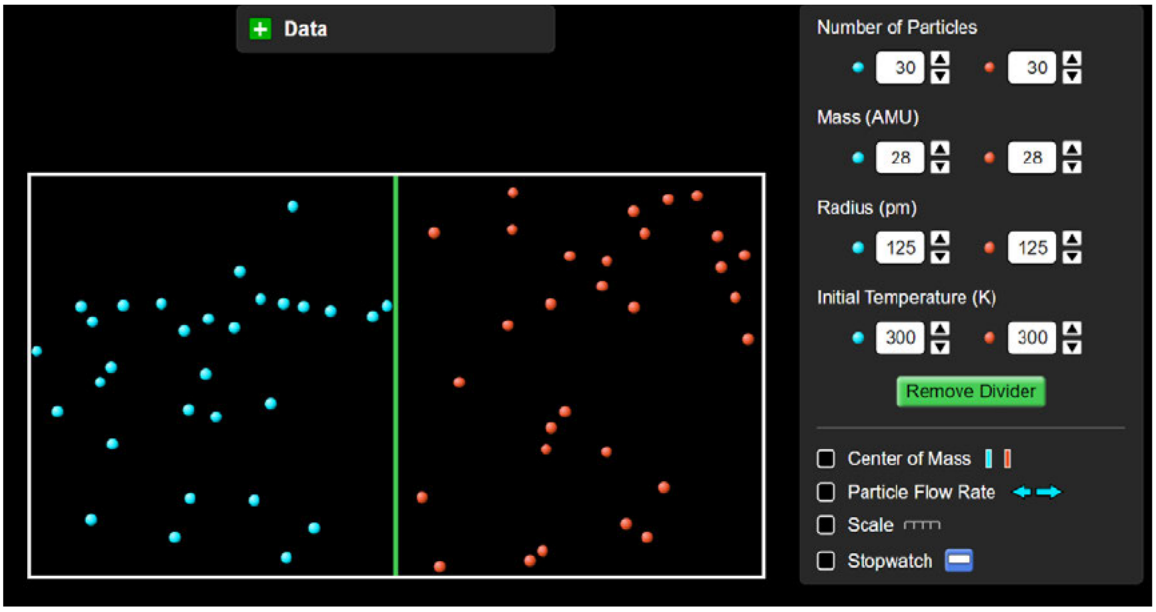
To observe diffusion in motion click on the following link:
https://phet.colorado.edu/sims/html/diffusion/latest/diffusion_en.html

3.4 – assist colleagues to select and use engaging ICT resource

- Set the **number of particles** to be the same on each side of the barrier
- Click on **remove divider**
- **Observe** how the particles move from an area of where they are in high concentration to an area of low concentration

(red particles move towards the left and blue particles move towards the right)

Eventually both coloured particles will be evenly spread across the two sides of the container, they have reached **equilibrium**.

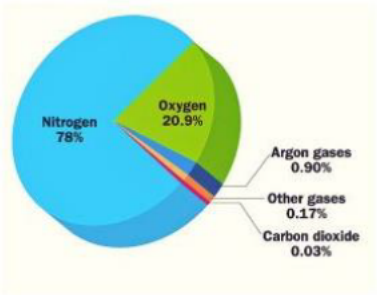


The process of diffusion applies to gas exchange between alveoli in the lungs and blood capillaries because there are concentration differences of oxygen and carbon dioxide between the alveoli and the blood supply.

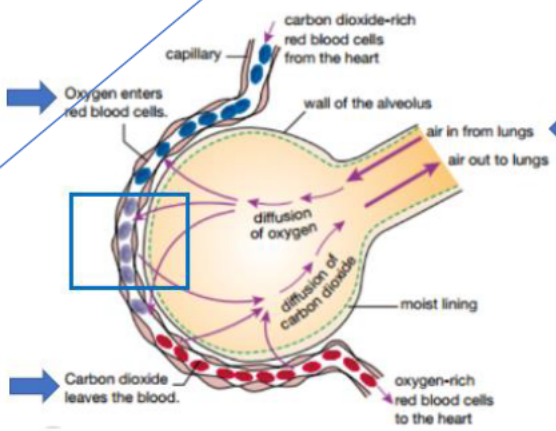
3.3 – strategy to develop knowledge

1. Blood in capillaries returning to the lungs from the body has a low oxygen concentration (the oxygen has been used for cellular respiration) and high concentration of carbon dioxide (waste product generated from cellular respiration).

2. The concentration of oxygen in the air we breathe into our lungs is relatively high (21%), the concentration of carbon dioxide in the air is low (0.03%)



The air we breathe is a mixture of nitrogen, oxygen, carbon dioxide and a tiny amount of other gases (mainly argon).



3. A concentration difference exists between the **high oxygen concentration in the alveoli** and the **low oxygen concentration in the blood**.

- ***In which direction does the oxygen diffuse?***

A concentration difference exists between the **high carbon dioxide concentration in the blood**, and **low carbon dioxide concentration in the alveoli**.

- ***In which direction does carbon dioxide diffuse?***

Consolidation & review

3.3 – strategy to develop knowledge

- Complete worksheet 3.5 The respiratory system

3.5 The respiratory system

Science understanding

FOUNDATION | STANDARD | ADVANCED

1 Label the parts of the respiratory system indicated in Figure 3.5.1 by selecting the correct term in the box below.

alveoli
bronchiole
bronchus
diaphragm
lung
trachea

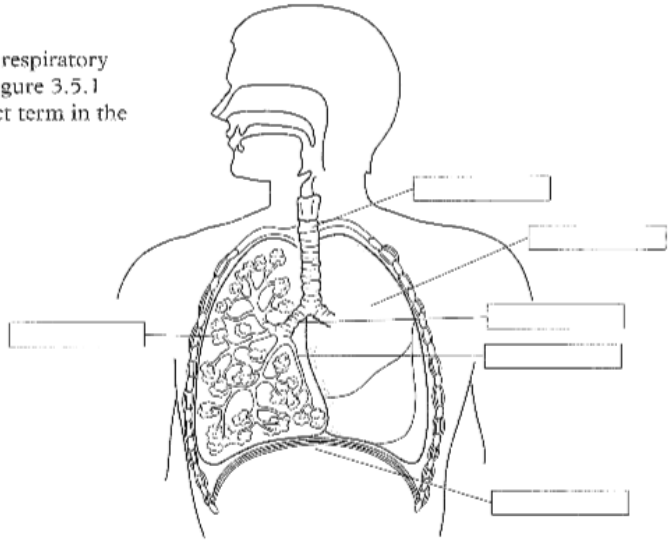


Figure 3.5.1 Respiratory system

2 Draw lines from the parts of the respiratory system in the left-hand column to match with their descriptions in the right-hand column.

Parts of the respiratory system	Description
trachea	A sheet of muscle that separates the chest from the abdomen. It contacts and flattens as you breathe in and domes up as you breathe out.
bronchi	A cluster of sacs in which oxygen and carbon dioxide are exchanged.
alveoli	Thin-walled tube reinforced with rings of cartilage. You can feel these rings as ridges on the front of your throat.
diaphragm	One of these carries air into each lung.

3 Air is breathed in by the respiratory system. Within the lungs, exchange of gases takes place and the air that is breathed out has a different composition.

Gas	Percentage (%)	
	Inhaled air	Exhaled air
nitrogen	78	78
oxygen	21	17
inert gases such as argon	1	1
carbon dioxide	0.04	4
water vapour	little	saturated

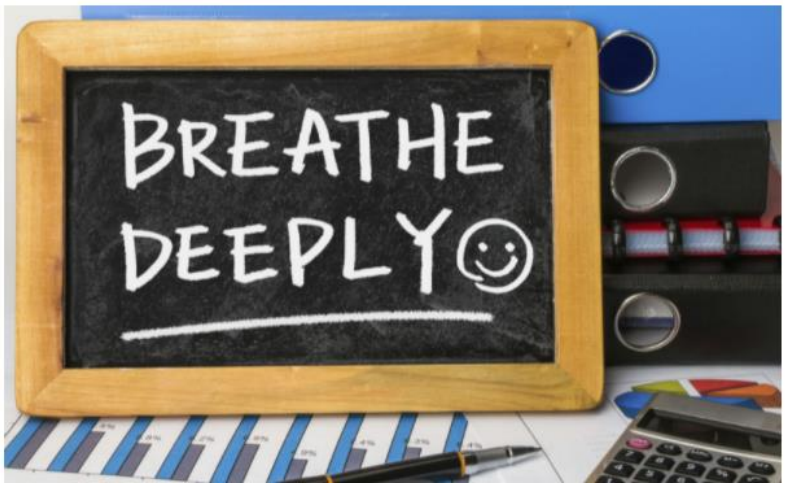
(a) List the gases that are present in the same quantities in inhaled and exhaled air.

(b) Explain why the quantities of these gases do not change.

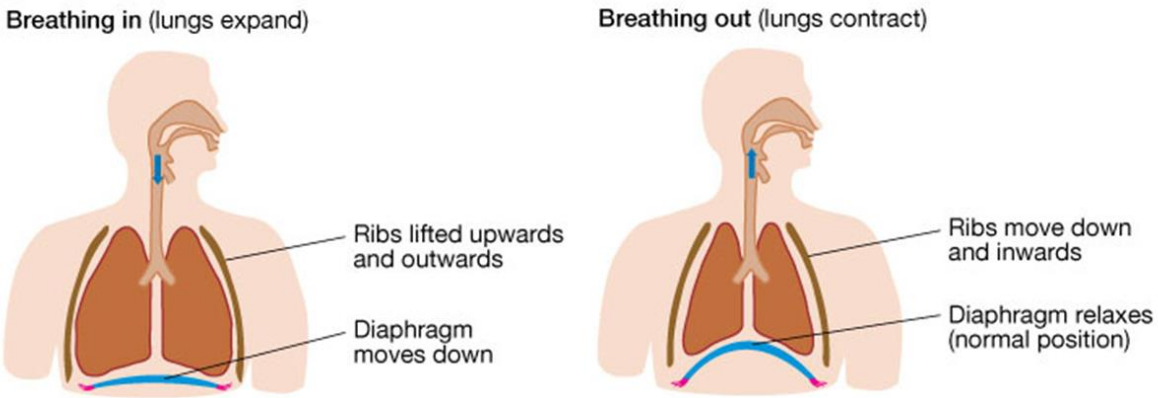
RATE MY UNDERSTANDING
Shade the face that shows your rating

At home:

- Take a rest and do the following breathing exercise:

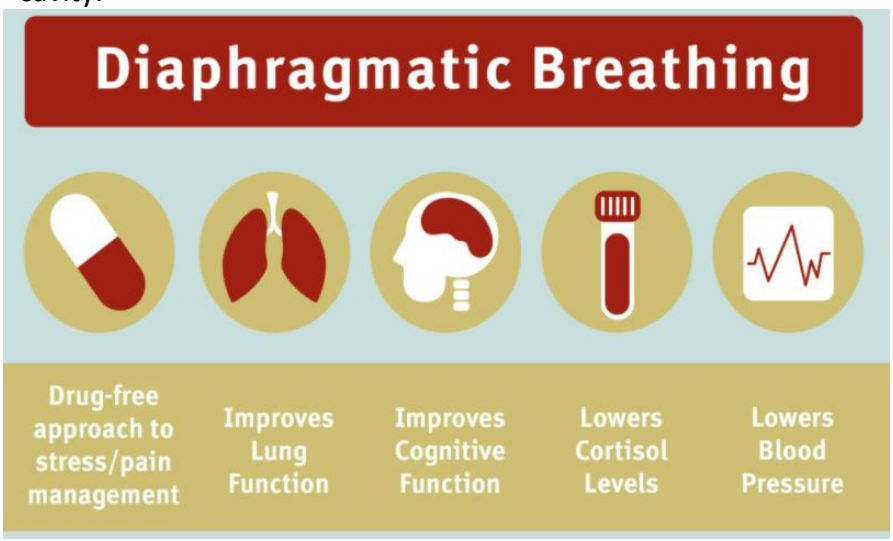


1.1 – strategy to suit physical development of students



The diaphragm, a dome-shaped muscle at the base of the lungs, plays an important role in breathing — though you may not be aware of it.

- When you inhale, your diaphragm contracts (tightens) and moves downward. This creates more space in your chest cavity, allowing the lungs to expand.
- When you exhale, the opposite happens — your diaphragm relaxes and moves upward in the chest cavity.



When we are busy and stressed, lots of us tend to breathe into our chests only, we don't engage our belly in our breathing, as a consequence our breaths are shallow and we don't get as much oxygen as we could be able to.

Diaphragmatic breathing (also called "abdominal breathing" or "belly breathing") encourages full oxygen exchange — that is, the beneficial trade of incoming oxygen for outgoing carbon dioxide. Not surprisingly, this type of breathing slows the heartbeat and can lower or stabilise blood pressure, and is a good stress reliever!

1.1 – strategy suit physical development

Here's how to do it:

- Lie on your back on a flat surface with your knees bent.
- Place one hand on your upper chest and the other on your belly, just below your rib cage.
- Breathe in slowly through your nose, letting the air in deeply, towards your lower belly. The hand on your chest should remain still, while the one on your belly should rise.
- Tighten your abdominal muscles and let them fall inward as you exhale through pursed lips. The hand on your belly should move down to its original position.

Stay and breathe with your belly for five minutes, hopefully you will feel more relaxed afterwards :)

From < https://www.health.harvard.edu/lung-health-and-disease/learning-diaphragmatic-breathing>

Revision

https://www.bbc.co.uk/bitesize/guides/ztkr82p/revision/1

Measuring your pulse

Friday, 7 May 2021 5:05 PM

3.3 – strategy to develop skills

SkillBuilder

Measuring your pulse

Your pulse is a measure of your heart rate—the number of times your heart beats per minute. Two of the easiest places to feel your pulse are at the wrist and at the neck, as shown in Figure 3.3.16. The pulse on your wrist is known as the radial pulse. The pulse in your neck is the carotid pulse.

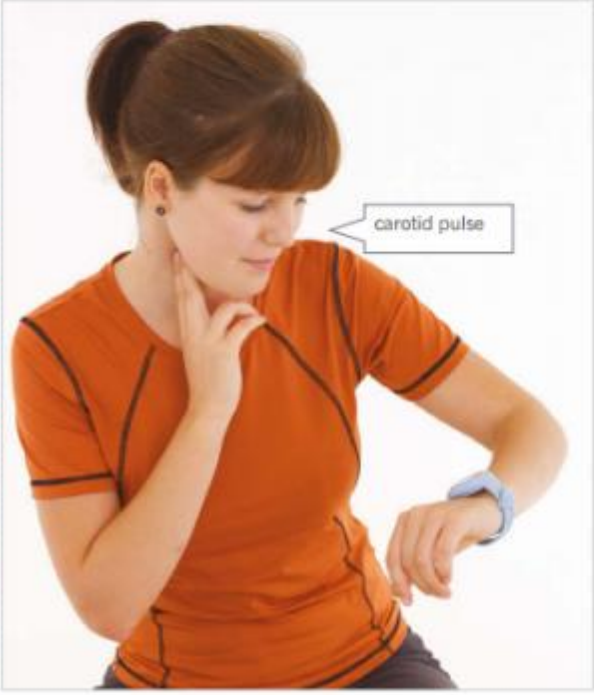


FIGURE 3.3.16 Your pulse can be felt on your neck or your wrist.

To take your pulse you need a stopwatch, a digital watch or a watch, with a second hand.

To measure the radial pulse:

1. Turn your hand so that the palm is facing upwards.
2. Place your index and middle fingers of your opposite hand on your wrist, approximately 2.5 cm below the base of your thumb.
3. Gently but firmly press your fingers in the area between the tendons of the wrist and the outside bone. You should feel a throbbing, which is your pulse.
4. Count the number of beats for 15 seconds, then multiply this number by 4. This will give you your heart rate for one minute.

For example, if you count 18 beats in the span of 15 seconds, then multiply 18 × 4 = 72. This means your pulse rate is 72 and your heart rate is 72 beats per minute.

To measure the carotid pulse:

1. Place your fingertips gently on one side of your neck, below your jawbone and halfway between the large neck muscle behind your ear and your windpipe.
2. Count the number of beats and calculate the pulse rate in the same way.

When taking a resting pulse rate—your pulse rate when you have been sitting still for some time—the longer you count the pulse, the more accurate the measurement will be. In that situation, count the pulse for 20 or even 30 seconds. If you count the pulse for 20 seconds, then you would multiply the number of beats by 3 to get beats per minute. Counting for 30 seconds means you multiply by 2.

Ten seconds is long enough if you are taking your pulse directly after exercise, when it could be changing rapidly. In this instance, you would multiply the number of beats by 6 to get the heart rate.

AB 3.7

Prac: Effect of exercise on breathing & heart rate

Wednesday, 12 May 2021 8:20 AM

Source: https://serpmedia.org/scigen/u3.4.html

Lesson objective:

- To explore whether there is a relationship between your breathing and your pulse when exercising.

1.1 – strategy to suit social characteristics

Before you begin:

Turn to the student next to you, discuss if you think breathing rate and heart rate **correlate** (have a relationship with each other). Give a reason for your decision, your teacher might ask you to share your thoughts.

- You have practiced measuring your pulse. How can we measure breathing rate?
- How do we convert that to a breathing **rate**?

3.3 – strategy to develop critical thinking

The aim of today's practical is to examine the correlation (relationship) between heart rate and breathing rate.

- You will do this by collecting data under different conditions: during rest and after low level and high-level exercise.

Write a **hypothesis** for this investigation:

- If the level of exercise is increased, breathing and heart rate will _____, because…(give a scientific reason)…

The research question we could ask would be:

- Is there a relationship between heart rate and breathing rate during exercise?

In this experiment what is the:

- **Independent variable** (what will be c_____):
- **Dependent variable** (what will be m_____):

3.3 – strategy to develop skills & knowledge

The overall practical will involve your group doing the following:

- **Recording data** at a low- and a high-intensity level of on the spot exercise.
- **Converting your data** to unit rates.
- **Plotting data** on a graph and analysing your results
- Considering the **accuracy** of your data by evaluating the methods and equipment used
- Suggesting an **improvement** to the method that will enable you to improve the accuracy of the experiment (think about this as you do your practical work)
- Suggesting one **extension** to the experiment that is related to your findings in this experiment.

Getting prepared:

Step 1. Decide who does what

3.3 – strategy to develop problem solving

- If you have a group of three, perhaps the subject can count their own breathing.
- You will need one stopwatch per group.

Measure baseline data:

1. Tell the subject to sit quietly for a few moments.
2. **Measure resting heart rate**: Using the method shown in the photograph, the pulse taker locates where he or she can feel the subject's pulse. When the timekeeper signals, the pulse taker counts the number of heartbeats in exactly 30 seconds.
3. **Measure resting breathing rate**: During the same 30 seconds, the breath counter observes the subject and counts the number of breaths he or she takes. Record your data in the table on the next page.
4. Repeat this procedure so you can find an average for accuracy. Remember to convert your data to a unit rate (per minute) by multiplying by 2.

	Heart Rate		Breathing Rate	
	30-second sample	***per** minute **rate***	*30-second sample*	***per** minute **rate***
Baseline Test 1				
Baseline Test 2				
Average of Baseline Tests				
Low-Intensity Exercise Test				
High-Intensity Exercise Test				

Do the activity tests and collect data, record it in the table above:

Two intensity levels

Low-intensity test

*Each subject jumps rope (or a similar exercise) at a **slow** pace for **one minute**.*

Immediately after they complete this task, measure their pulse and breathing for 30 seconds. (Don't forget to convert to a unit rate.)

High-intensity test

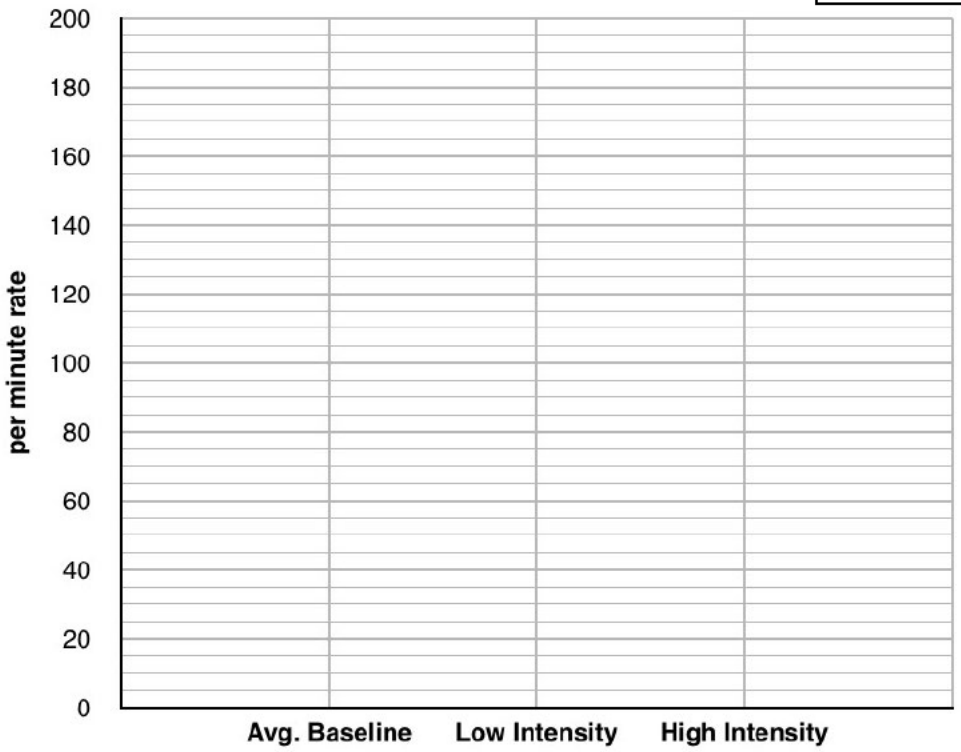
*Each subject jumps rope (or a similar exercise) at a **fast** pace for **two minutes**.*

Immediately after they complete this task, measure their pulse and breathing for 30 seconds. (Don't forget to convert to a unit rate.)

Plot your data

Use one color to represent heart rate and a different color to represent breathing rate.

2.5 – support colleagues to implement strategy for numeracy achievement



Analyse your data:

Question	Response
Describe the trend in the data, what effect does exercise have on breathing rate? What effect does exercise have on heart rate? Use data to support your description.	3.3 – strategies for developing skills and knowledge
Is there a correlation (**relationship**) between the experimental variables of exercise level (independent variable) and breathing and heart rates (dependent variables)?	

Interpret your data:

Question	Response
If you have decided that there is a correlation (relationship) between exercise level and breathing and heart rates, **explain** why you think this is so using scientific theory.	3.3 – strategy to develop knowledge

Evaluate your experiment:

Question	Response
You collected quantitative data about what happened when the subject exercised. **Describe** some qualitative data you could have collected about what happened during the tests.	3.3 – strategies to develop critical thinking
Why did you repeat your measurements when collecting baseline data? Would you have better data if you repeated the other tests too? Why or why not?	
Were there any reasons for a lack of accuracy in your experiment? Consider the **methodology** and the **equipment** used. *Remember, human error and silly mistakes are your fault, they are not the fault of the experiment, and are therefore not scientific errors.*	

Should you reasonably draw a conclusion using this data considering you only had one test subject?	
Suggest one **improvement** to the methodology that you think would make your data more accurate, and therefore more reliable.	3.3 – strategies to develop critical and creative thinking
Suggest one **extension** to this experiment. Could you collect some other related data that would extend your understanding of the relationship between exercise and breathing and heart rate?	

Draw a conclusion to your experiment: applicant

In a few sentences, summarise your results and answer the research question - was there a correlation between breathing and heart rate after exercising? You might like to also make a comment in your conclusion about the accuracy of your experiment, and whether the data is reflective of any test subject you could have chosen.

3.3 – strategy to develop knowledge

- **Survey of teaching team – evidence of impact of support with planning and implementation**

Year 8 Science 2021 - Teaching Team Reflection & Feedback - Saved

Questions | Responses 5

Year 8 Science 2021 - Teaching Team Reflection & Feedback

1. How well did the provision of a complete term planner for [redacted] (applicant) class (8F) prior to the beginning of the Biology unit support you to plan your own teaching and learning program for this unit? (0 point)

More Details

Extremely well	4
Somewhat well	1
Neutral	0
Not very well	0
Not at all	0

2.1 - support colleagues using current and comprehensive knowledge of content and teaching strategies to plan and implement engaging learning and teaching program

2. Do you have any suggestions for further planning support for this unit in the future? (0

No

When planning revision lessons for the end of the term, it could be beneficial to assign one page per concept listed on the revision checklist.

3. How well did the provided Year 8 Biology lessons generally support you to effectively implement the teaching and learning of this unit of work? (0 point)

More Details

Extremely well, the lessons reall...	3
Somewhat well, I mostly used th...	2
Not that well, I preferred to teac...	0

Extremely well, the lessons really supported my teaching in this unit, I did not feel the need to make further resources
Somewhat well, I mostly used these lessons to support my teaching, but used some of my own resources

4. How well do you feel the provided lessons supported students to gain knowledge and skills against the Year 8 Biology ACARA descriptors "Cells are the basic units of living things; they have specialised structures and functions", and "Multi-cellular organisms contain systems of organs carrying out specialised functions that enable them to survive and reproduce"? (0 point)

More Details

Extremely well	5
Somewhat well	0
Not very well	0

2.3 – support colleagues to implement program using knowledge of curriculum, assessment and reporting

5. Did the provided lessons align sufficiently well with the term assessment task? (0 point)

More Details

Yes	5
No	0

6. Did the inclusion of literacy strategies in lessons such as vocabulary lists, bolded vocabulary/key words, class discussion questions, content summarising and question response tasks support you to effectively build/improve students' scientific literacy? (0 point)

More Details

Yes	5
No	0

2.5 – support colleagues to implement strategies for literacy achievement

7. Please comment on your use of literacy strategies from the lessons, additional feedback on further strategies you would suggest to improve student scientific literacy in Year 8 Biology are welcome. (0 point)

I think that the Lesson I observed where you did a literacy paragraph activity before the year 8 physics exam was very valuable and I would implement similar activities regularly throughout the year.
Use of a glossary tab in OneNote; emphasis on spelling techniques: use of quizlet to build student literacy such as using flash cards to learn definitions and correct spelling.
I am investigating the "word wheel" for vocabularly
The students responded very well to the bolded key words. It made it easy for the girls to add these words to their glossary which they were able to then research and write their own definitions in their own time.
Glossary was used for their homework and gave students a central location to record this information in preparation for assessment. Glossary was also used as a starting point for the following lesson to revise previous material.

2.5 – support colleagues to implement strategies for literacy achievement

8. Did the inclusion of numeracy strategies in lessons and practicals, such as calculating, graphing and data analysis activities (e.g. microscope/cell size calculations, measurement units conversions, recording and analysis of data in graphs and tables) support you to effectively build/improve students' numeracy skills in Science? (0 point)

More Details

Yes	4
No	1

2.5 – support colleagues to implement strategies for numeracy achievement

9. Please comment on your use of numeracy strategies from the lessons, additional feedback on further strategies you would suggest to improve student numeracy skills in Year 8 Biology are welcome. (0 point)

Graphing and use of Excel is still poor across year 7 and 8. I would love a collaboration with the BITs teachers to create a unit on Excel to better support their science and maths studies.

I did not directly teach numeracy. I modelled answers to the questions and stepped them through how to calculate cell sizes and convert, I also taught them how to graph a graph from data in excel. The reason I have said no, is I don't recall explicit teaching lessons in this area.

The girls quite often struggle with basic numeracy strategies in science as they don't think they need maths in science. The inclusion on calculations and graphing throughout the unit built their confidence and enhanced their numeracy skills for the rest of the term.

2.5 – support colleagues to implement strategies for numeracy achievement

Numeracy strategies gave all teachers and therefore students the same knowledge to work with. When it came time to checking the assessment against content taught, it was very easy to see where these skills had been explicitly taught.

2.3 – support colleagues to implement program using knowledge of curriculum, assessment and reporting

10. How well did the practical activities in this unit support students' scientific knowledge and skills? Suggestions for improvements are welcome. (0 point)

The cell practicals and other demonstrations were very engaging. Although the heart disection was engaging I felt it didnt really improve their understanding.

Students enjoyed looking at protists under the microscope which gave them an idea of what these organisms look like as well as their size.

3.3 – support colleagues to select and apply strategies to develop knowledge and skills

Supported them well. Practical linked well with objectives

The practicals supported the students scientific knowledge and skills very well throughout the unit. The students responded well to hands on activities and were able to make links between the course content and practical elements easily.

Extremely well - it is important to have this knowledge and skills mapped out across all junior science subjects for all year levels.

11. How well did the overall teaching strategies and ICT embedded in the lessons support you to engage your students in their learning, and make the content relevant and meaningful? (0 point)

I would love to see more ICT incorporated into biology. There are some amazing 3D models and VR experiences that we could explore.
They were competent in the use of excel
Good mixture of videos and text. Not too text heavy
The teaching strategies and relevant ICT supported the engagement of the students very well. For many students, just reading off a PowerPoint or from a text book does not allow them to engage in their learning. The implementation of filling in missing words, review questions from the previous lesson and consolidation questions allowed the students to identify areas that they struggled with and areas which they felt confident in.
Very well.

3.4 – assist colleagues to select and use a range of resources including ICT to engage students in their learning

12. If you taught the provided lessons on Indigenous geology, please provide comments/feedback on how these lessons supported you to provide opportunities for your students to develop understanding and respect for Aboriginal and Torres Strait Islander histories, cultures and/or languages. (0 point)

The indigenouse geology classes were very interesting especially the mulitple uses of rocks in tool making, art, decoration and sun protection. I learnt a lot myself!
I feltthat the amount of text on the OneNote page was too much for year 8. The reading level was too high for them and required chunking and to be broken down. the subject matter was interesting. They enjoy making Stone Stories, however, because it was at the end of the term, the student weren't as engaged. It would be better if it was interwoven within the course rather than added on.
I loved these lessons, however, the rock painting lesson I did not complete. I did not feel comfortable with completing this. I spoke to an art teacher who is very active in the Indigenous community and she suggested that this particular activity was best not completed.
I taught the theory lesson but did not do the rock painting with my class. Wonderful that insight into where A&TSI could be incorporated into the curriculum was shared across the team and could therefore be shared with the students.

- **Student survey indicating that the Biology unit was engaging for Year 8 Science students**

Year 8 Science 2021 - Saved

Questions | Responses 25

Year 8 Science 2021

25	07:18	Active
Responses	Average time to complete	Status

Review answers | Post scores | Open in Excel ...

1. Which content topic/s did you enjoy most this year? (you may select more than one) (0 point)

More Details

Chemistry - physical and chemic...	4
Biology - microscopes and cells	5
Biology - body systems	18
Earth Science - rocks	8
Physics - energy	7