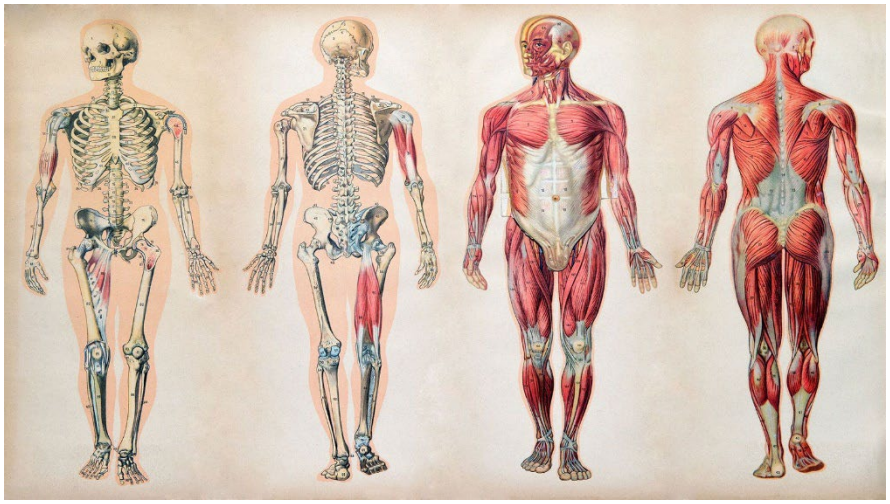
Kirkcaldy High School



BGE Science

Sports Science

Our Body

Name:_____

Class:_____

Teacher:_____

Expectations and Outcomes Learner Evaluation

Topic: Body systems – musculoskeletal and respiration

Experience and Outcomes	Date Completed (dd/mm/yy)	Evaluation How happy are you with it? (☺ ? ☹)
I can state the main functions of the skeleton		
I can name some of the main bones of the skeleton		
I can state the name of joints in the body		
I can state the types of joints in the body		
I can explain how the types of joints move		
I can define the 3 types of muscle.		
I can describe how muscles join to bone		
I can describe how muscles work		
I can undertake an experiment to test muscle fatigue		
I can explain why muscles become tired		
I can state the parts of the respiratory system		
I can explain how air enters the lungs		
I can explain how air enters the blood		
I can describe the function of each part of the respiratory system		
I can measure lung health using peak flow and vital capacity		
I can explain the effect each of tar, nicotine has on our body.		
I can describe what other health implications smoking can lead to.		
I can explain the negative effects of smoking to others.		

Date: _____

The Skeleton

Starter

We all have a skeleton, what do you think the job of the skeleton is?

_____

_____

Learning Intentions

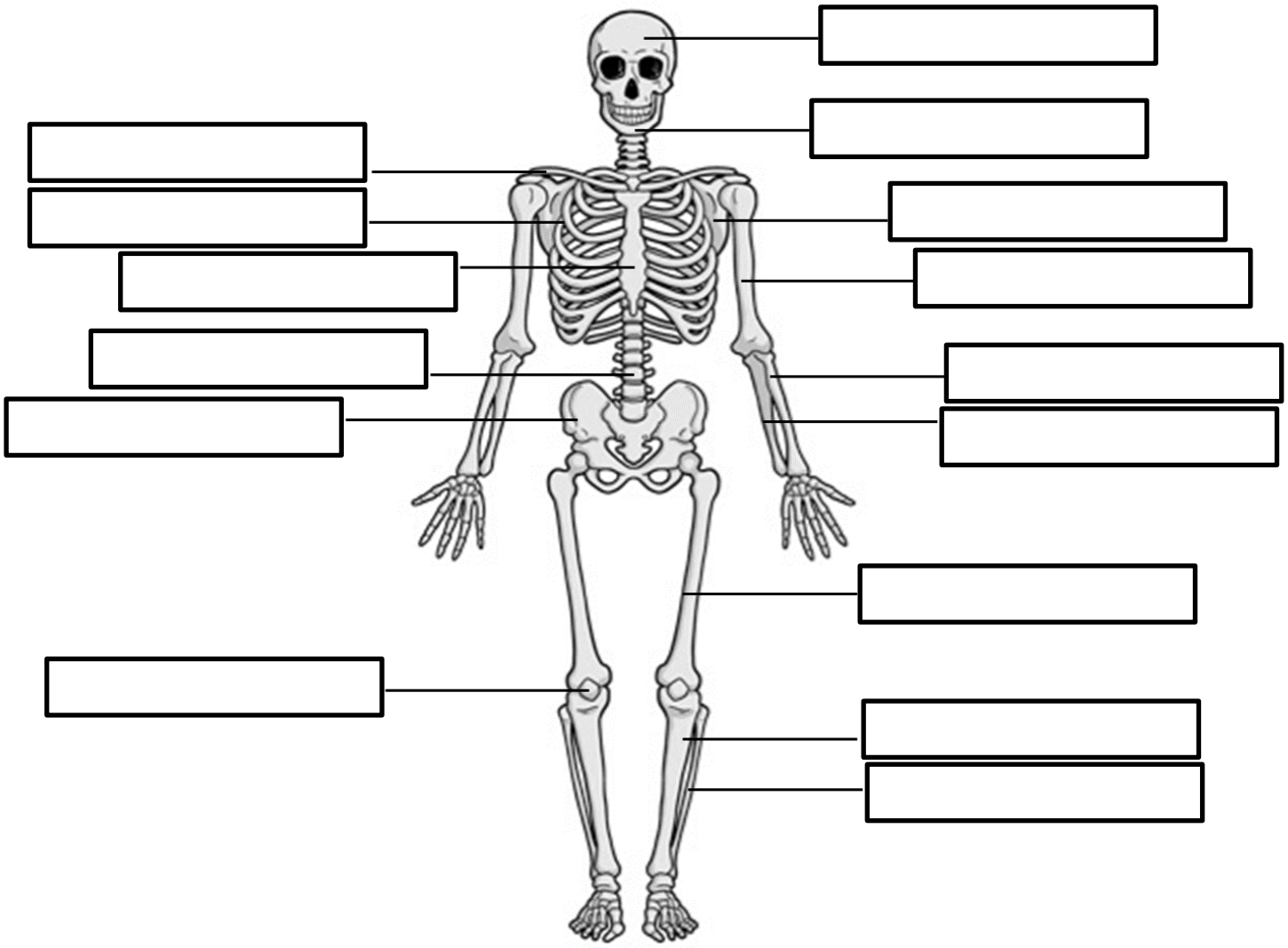
- To find out what the main functions of the skeleton are
- To be able to name some of the main bones of the skeleton

Success Criteria

Tick me at the end if ***you can*** …

☐ I can state the main functions of the skeleton

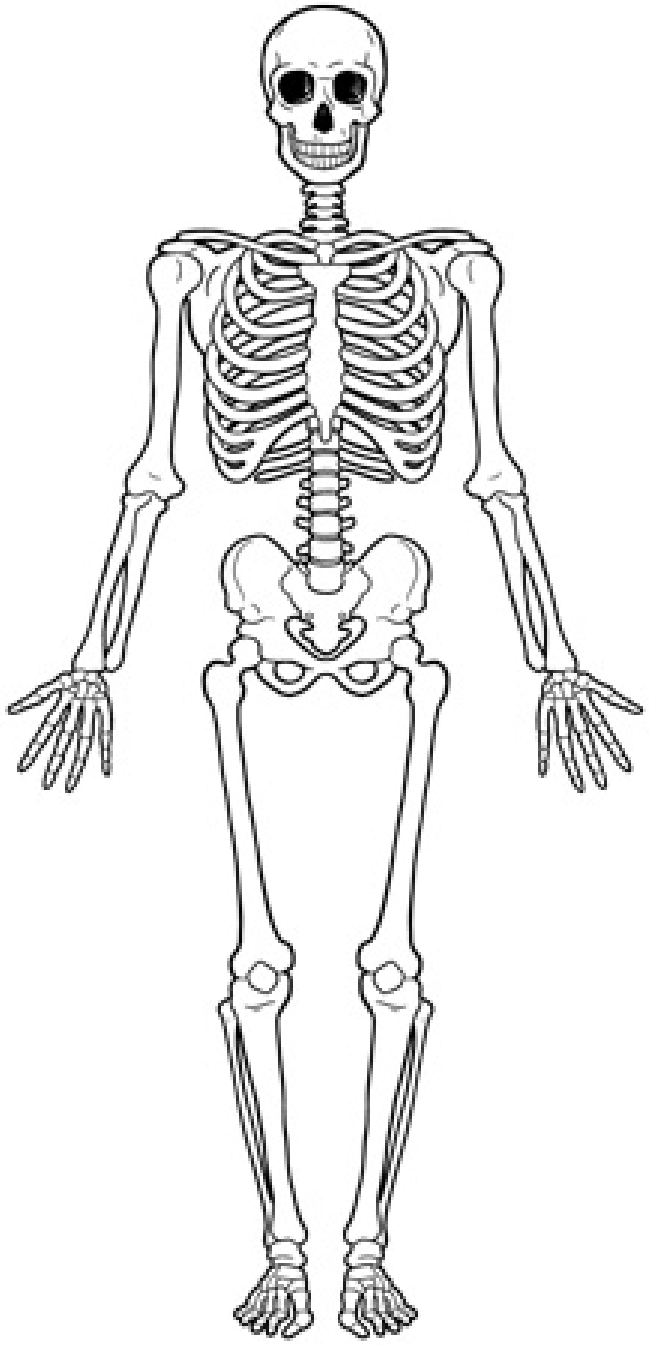
☐ I can name some of the main bones of the skeleton



Functions of the skeleton

The three main functions of the Skeleton are _____, _____ and _____.

Now choose 3 colours and shade the bones in our body which provide the 3 main functions. *Create a colour key below the diagram.*



Colouring key:

Optional Mr. Skeleton

Date: _____

Joints

Starter

Can you think of any joints in the body?

_____

_____

Learning Intentions

- To find out what a joint is
- To find out the different types of joint in the body

Tick me at the end if ***you can*** …

Success Criteria

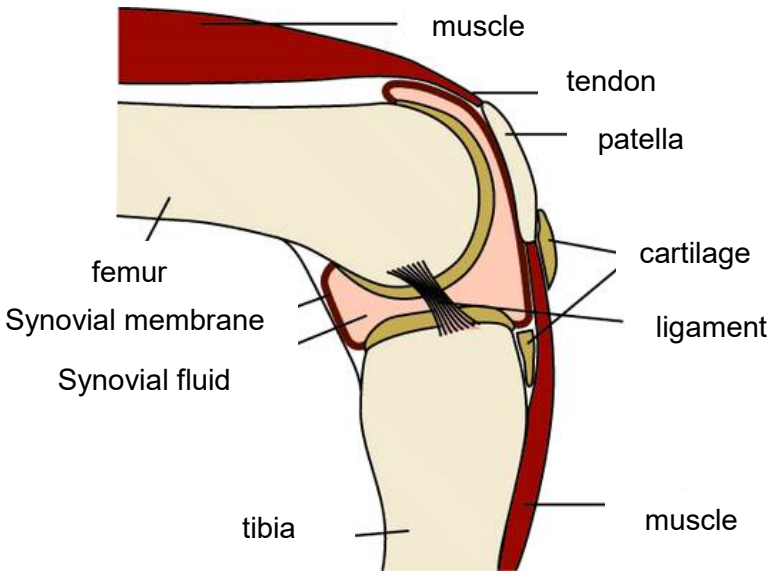
☐ I can state the name of joints in the body

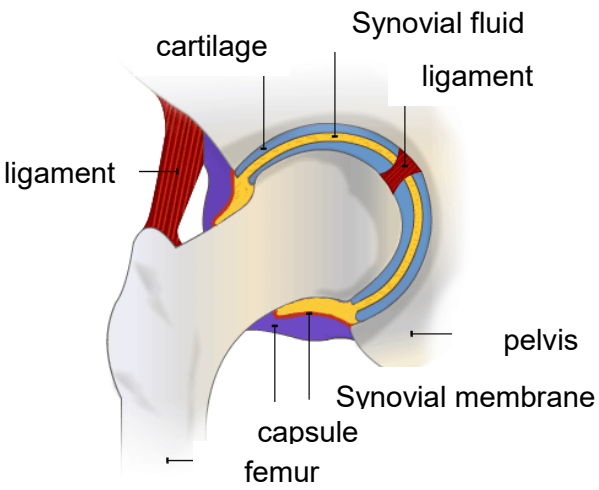
☐ I can state the types of joints in the body

☐ I can explain how the types of joints move

Types of Joints

The meeting point between two bones is called a Joint. There are two different types of joint:





Type of Joint	Movement of Joint	Examples of Joint

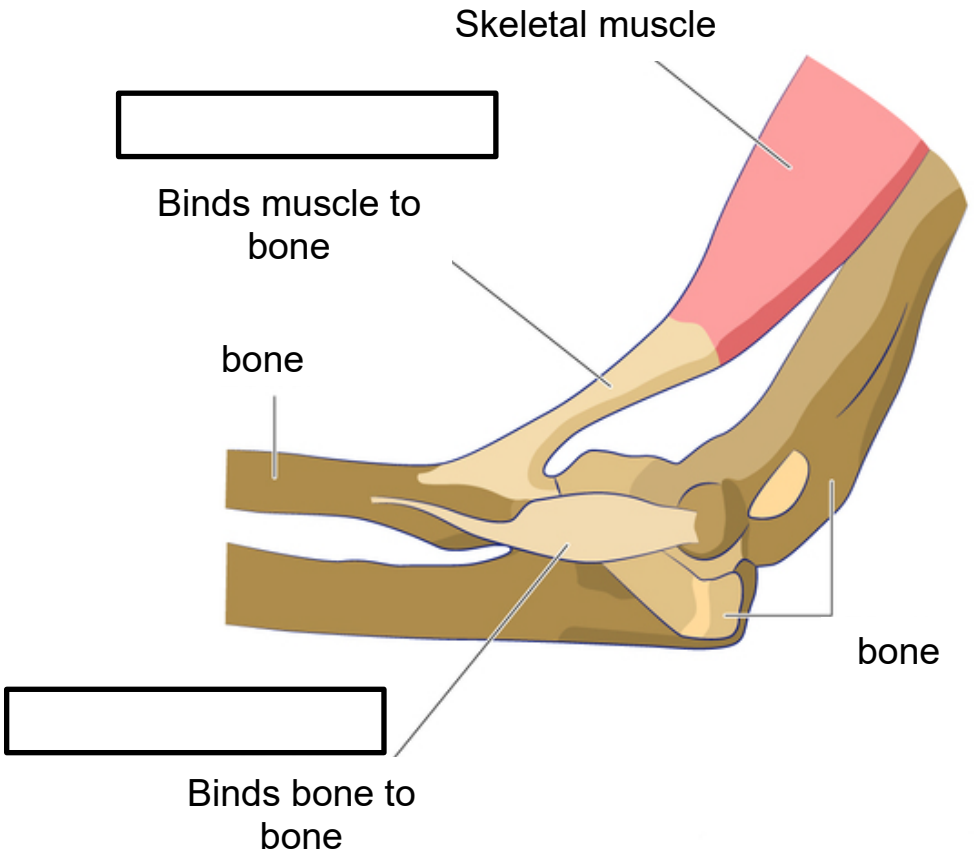
Cartilage – covers the ends of bones. It has two functions:

- Acts as a _____ in joints
- It is smooth so _____ _____ when the joints move.

Ligaments – hold _____ together at a joint (connects **bone to bone**).

They hold the joint in place yet allow movement because they are slightly _____.

Tendon versus ligament



Date: _____

Muscles

Starter

Can you name any of the muscles in the body:

_____

_____

Learning Intentions

- To name the 3 types of muscle.
- To describe how muscles join to the bone.
- To describe how muscles work.

Success Criteria

☐ I can define the 3 types of muscle.

☐ I can describe how muscles join to bone

☐ I can describe how muscles work

Tick me at the end if ***you can*** …

Types of muscles

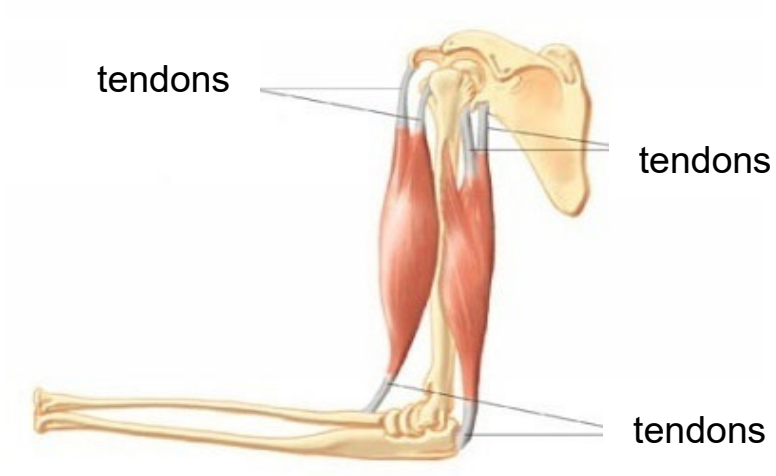
There are 3 main types of muscle:

- _____ muscle (muscles in intestines)
- _____ muscle (heart muscle)
- _____ muscle (muscles that attach to skeleton)

Tendons

Tendons join muscle to bone.

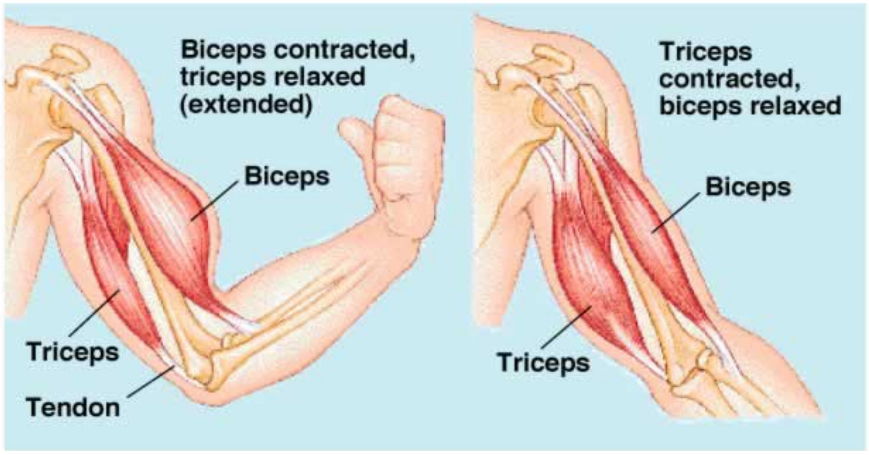
Tendons are _____ (they do not stretch). This means that all the movement of the muscle will be passed on to the bone.



Muscles working together

Antagonistic pairs

Muscles work in _____ pairs. They are said to be antagonistic to one another. Muscles _____ (get shorter and fatter) and _____ (longer and thinner)



Chicken wing Dissection

_____

_____

_____

_____

_____

_____

_____

_____

Date: _____

Muscle Fatigue

Starter

What did you learn from the chicken wing dissection?

_____

_____

What do you think happens to your muscles when you exercise for a long period of time?

_____

_____

Learning Intentions

- To find out what happens to our muscles when we exercise for a long period of time

Success Criteria

☐ I can undertake an experiment to test muscle fatigue

☐ I can explain why muscles become tired

Muscle fatigue

This is when a muscle loses its ability to _____ as a result of over activity.

- It will happen when there is a lack of _____ to the muscle
- There is a build-up of _____ _____.

Experiment

Aim – To investigate how grip strength/strength can be affected by time.

Method – In pairs go around the room trying each of the muscle fatigue exercises.

Conclusion:

_____

_____

_____

_____

Impacts on performance

A _____ can have an impact on performance.

Other factors that influence performance:

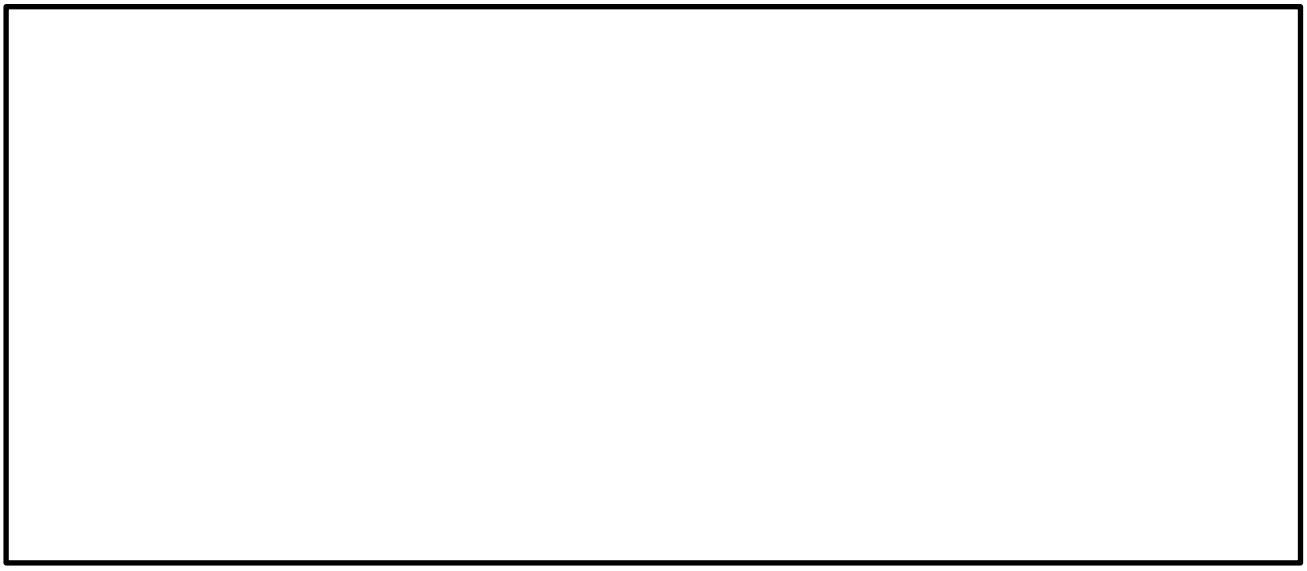
_____

_____

Additional Experiment

_____

_____



_____

_____

_____

_____

_____

Date: _____

The Lungs

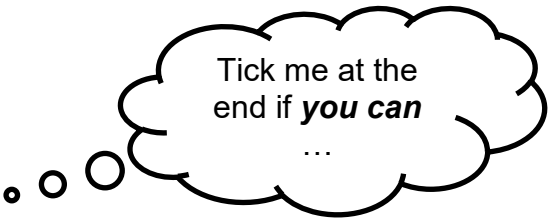
Starter

Did you know…your nostrils take turns taking breathing air in and out?

…Prove it

Learning Intentions

- To learn about the respiratory system
- To learn about how we breath.



Success Criteria

- ☐ I can state the parts of the respiratory system
- ☐ I can explain how air enters the lungs
- ☐ I can explain how air enters the blood
- ☐ I can describe the function of each part of the respiratory system

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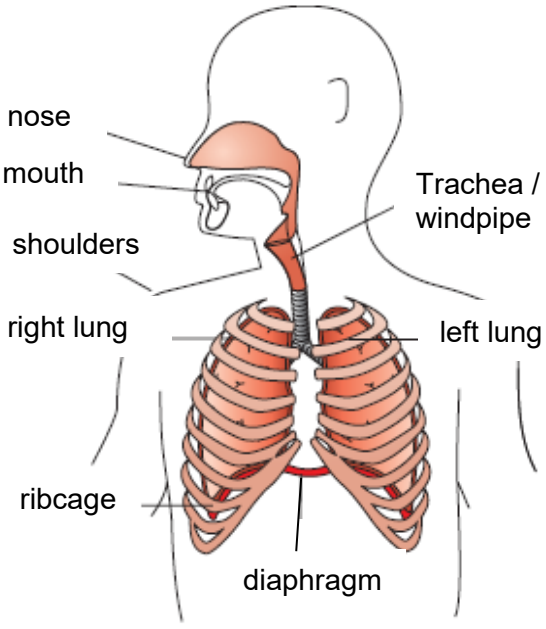
The Respiratory System

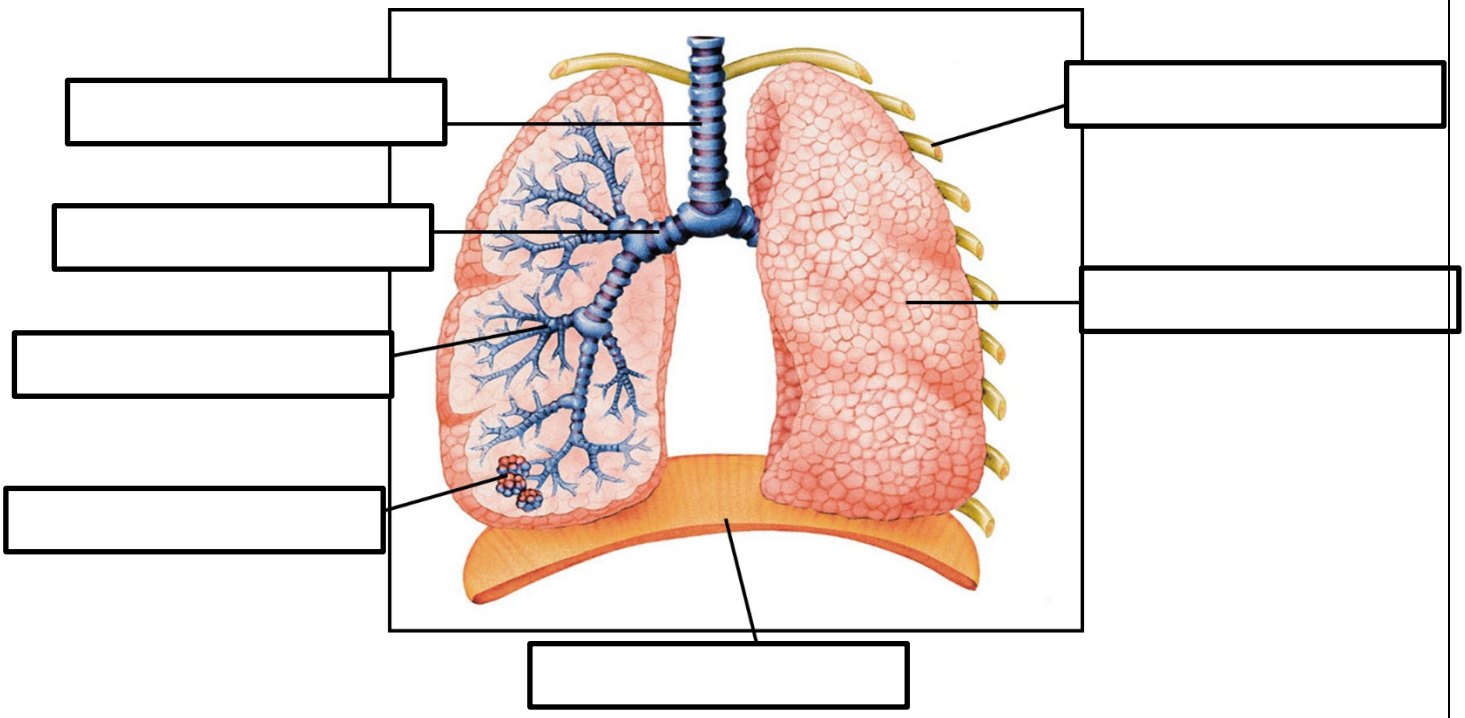
The lungs are the organs of gas _____.

Our cells need the oxygen from the air and we must get rid of the _____ product _____ _____.

Air enters the breathing system by the nose or mouth.

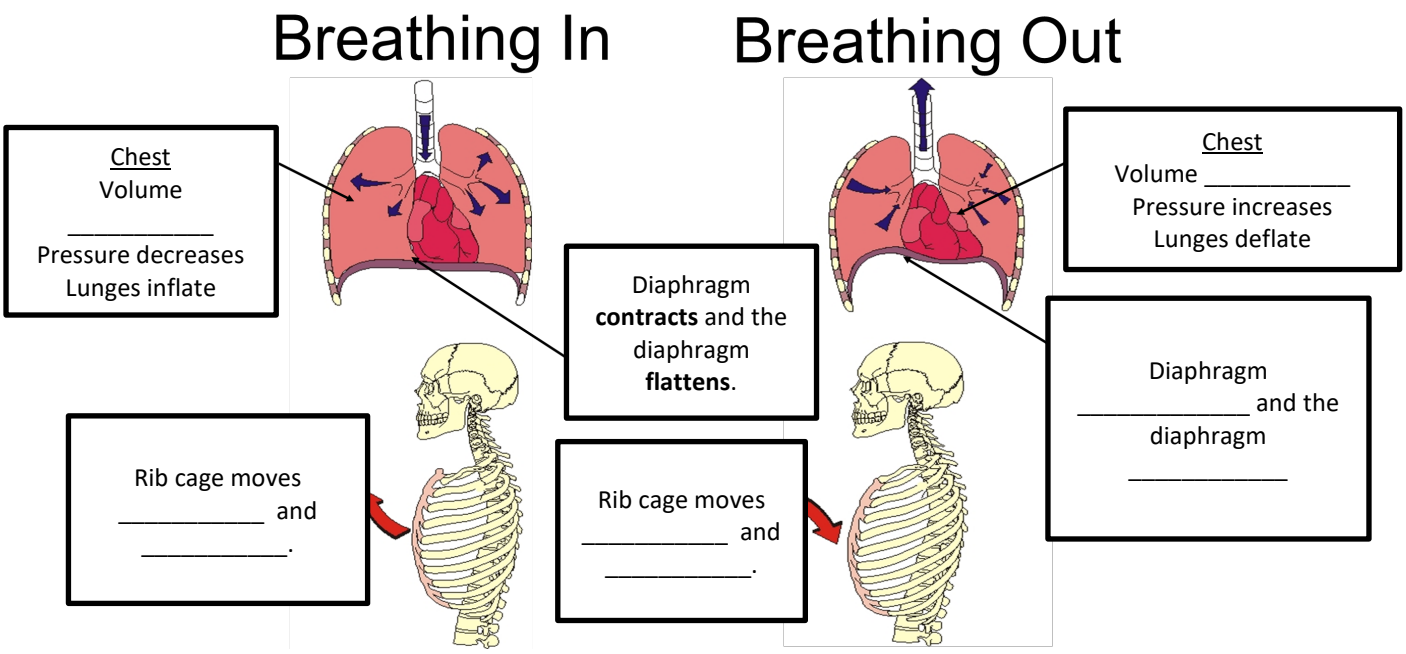


Structure of the lungs



The windpipe and the bronchi have rings of _____ in them. This makes sure that they stay open at all times.

Function of the diaphragm



Lung Dissection

_____

_____

_____

_____

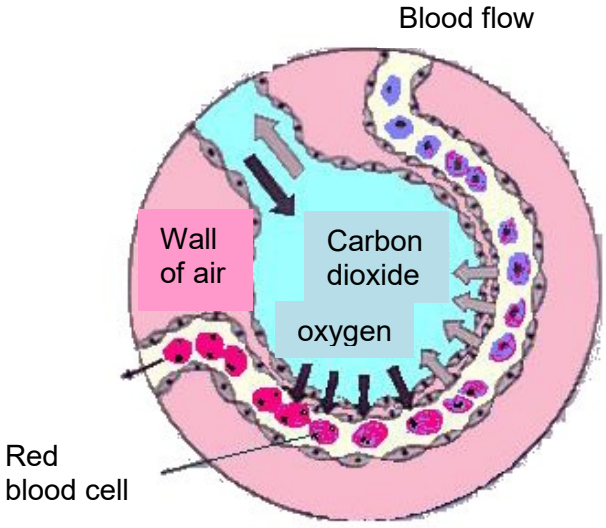
_____

_____

The air sacs

The air breathed in reaches the air sacs and is full of _____.
The air sacs are surrounded by _____ _____.
As the blood flows through the vessel:

- _____ moves from the air sac to the blood.
- _____ _____ moves from the blood to the air sac (so we can breath it out)



Date: _____

Lung Health and effects of smoking

Starter

What tests can athletes do to monitor the health of their lungs?

_____

_____

Learning Intentions

- To describe how lung health can be measured
- To understand the effects of smoking on your lungs

Success Criteria

- ☐ I can measure lung health using peak flow and vital capacity
- ☐ I can explain the effect each of tar, nicotine has on our body.
- ☐ I can describe what other health implications smoking can lead to.
- ☐ I can explain the negative effects of smoking to others.

What does vital capacity measure:

_____

_____

Vital capacity results: _____

What does peak flow measure:

_____

_____

Peak flow Results: _____

Smoking

Substance	**Effect on the body**
	A _____ gas. Stops red blood cells from carrying _____ around the body. Your heart has to work harder so can cause heart disease.
	A drug made by tobacco plants. Increases _____ _____. Highly _____.
	Sticky substance that _____ lungs. Can cause _____. It is also used to lay _____.

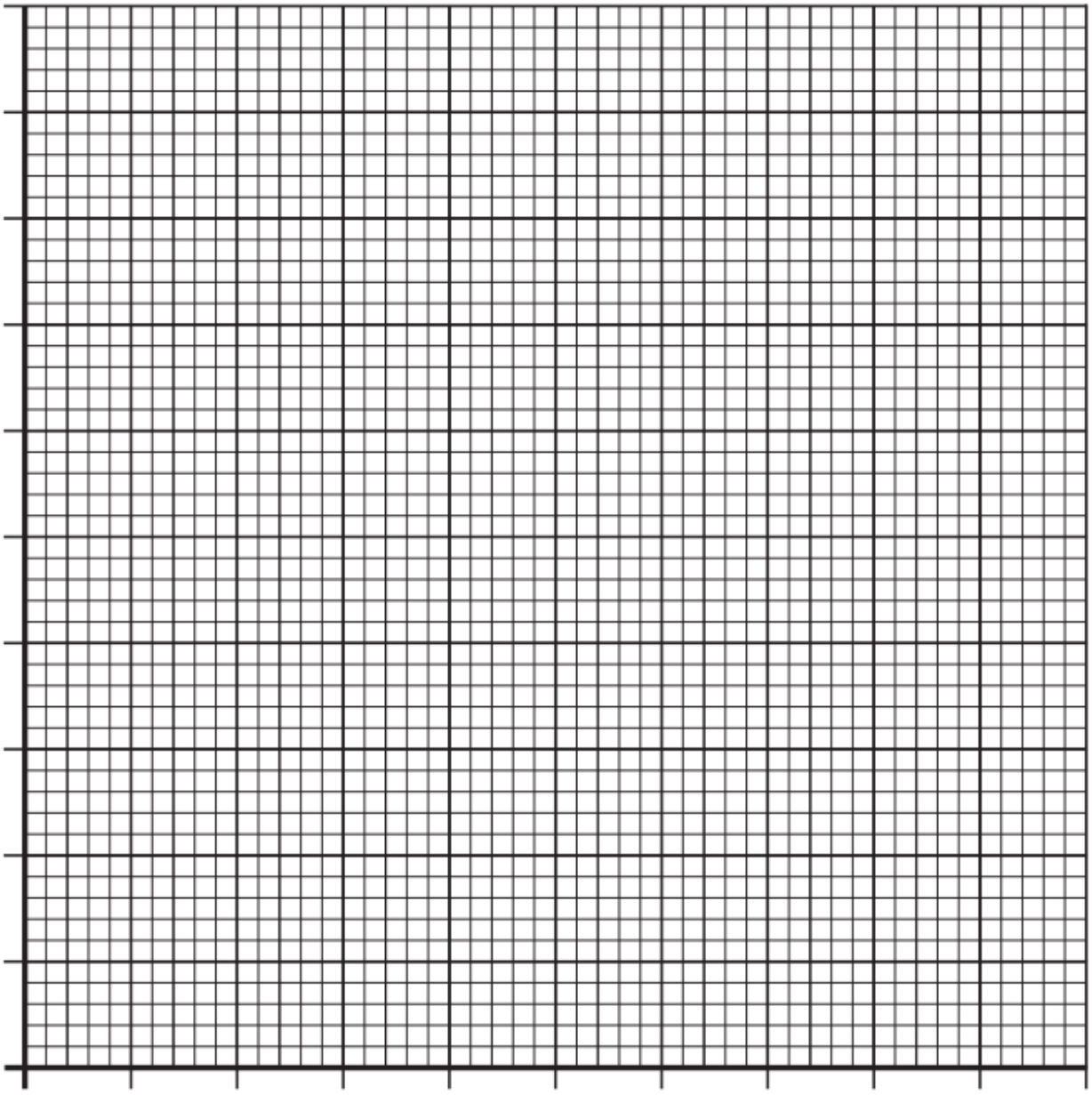
Smoking affect on sports performance

Smoking causes both immediate and long-standing effects on exercise and physical activity. smokers have:

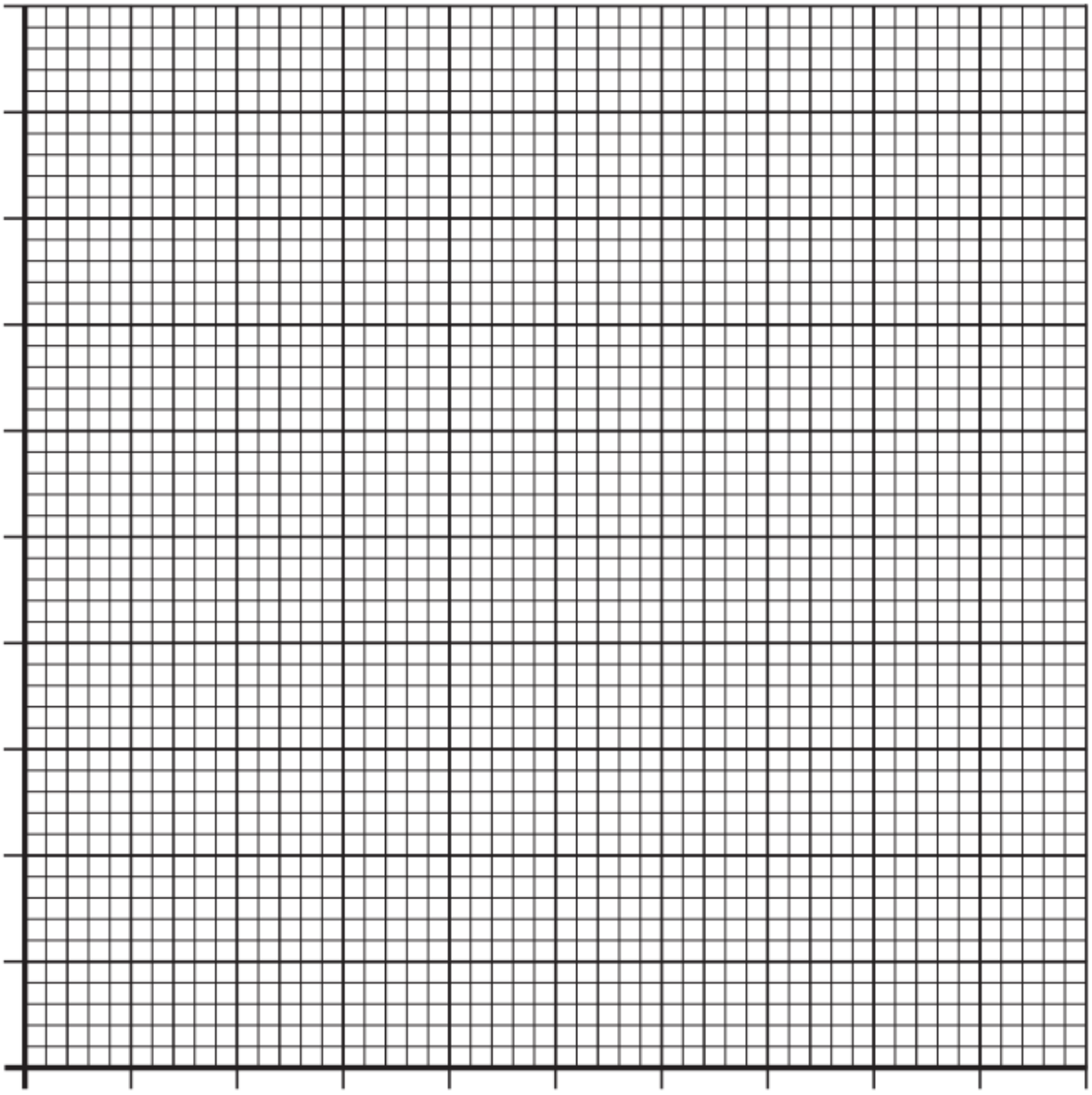
- Less _____
- Poorer _____ performance
- Increased rates of _____ and complications
- less _____ from physical training.
- less muscular _____ and _____.

Design your own cigarette packet to help smokers understand the dangers…

Graph paper for numeracy tasks:



Graph paper for numeracy tasks:



Extension Tasks

Word Search

The Body

E	U	G	P	C	D	I	A	P	H	R	A	G	M
N	L	S	I	E	C	N	A	R	U	D	N	E	S
I	U	T	E	P	B	R	V	E	G	N	I	H	C
T	N	E	L	L	T	I	B	I	A	T	I	S	M
O	G	R	I	D	C	A	L	I	C	E	D	C	O
C	S	N	U	N	I	S	F	E	U	N	L	C	T
I	L	U	U	C	S	C	U	E	N	D	I	O	F
N	T	M	A	I	I	E	A	M	M	O	N	I	F
C	L	A	V	I	C	L	E	C	L	N	B	A	L
E	E	L	N	D	E	U	A	N	I	U	F	R	H
M	E	R	N	D	S	V	I	I	L	T	C	E	T
P	F	L	I	M	H	B	E	A	L	O	C	C	E
D	C	G	T	N	E	M	A	G	I	L	O	A	I
R	U	M	E	F	S	L	E	L	R	G	A	E	L

HINGE
TIBIA
CLAVICLE
LACTIC ACID
FIBULA
TENDON
DIAPHRAGM
ENDURANCE
STERNUM
FEMUR
LUNGS
LIGAMENT
MUSCLE
NICOTINE
PELVIS

Riddles

1. Riddle: I'm a framework that gives you shape and helps you stand up straight. I consist of 206 pieces that fit together just right. What am I?

   _____

2. Riddle: I am the longest, strongest, and largest bone in your body. I support your weight and help you walk and run. What am I?

   _____

3. Riddle: I am found in your mouth, and I come in different shapes and sizes. I help you chew and grind your food to enjoy each tasty bite. What am I?

   _____

4. Riddle: I am strong and flexible, connecting your bones together. I help you move and bend without breaking apart. What am I?

   _____

5. Riddle: I am a part of your body that's hollow and small. I make new blood cells, and I'm found in all. What am I?

   _____

6. Riddle: I am slippery and smooth, covering the ends of your bones. I help your joints move easily without any groans. What am I?

   _____

7. Riddle: I protect your brain and shape your face. I have 22 pieces that fit like a puzzle in their place. What am I?

   _____

8. Riddle: I am a group of bones found in the middle of your body. I protect vital organs and help you breathe free. What am I?

   _____

9. Riddle: I am found at the ends of your limbs, and I come in pairs. I'm a part of your hands and feet, and I help you grasp and wear. What am I?

   _____

10. Riddle: I connect your muscles to your bones and help you move with ease. I'm strong and tough, but can also stretch like a rubbery breeze. What am I?

    _____

Draw a comic strip on one of the topics. Ask your teacher for ideas.

Extra Questions

1. What are the main functions of the human skeleton?

_____

_____

2. Can you name the three types of muscles found in the human body?

_____

_____

3. How many bones are there in the adult human body?

_____

_____

4. What is the difference between tendons and ligaments?

_____

_____

5. Can you name the longest bone in the human body?

_____

_____

6. What is the role of the diaphragm in the process of respiration?

_____

_____

7. How do muscles work together in pairs to create movement?

_____

_____

8. What are the two main types of joints in the human body, and how do they differ?

_____

_____

9. How does oxygen get transported from the lungs to the cells of the body?

_____

_____

10. What is the main function of the lungs in the respiratory system?

_____

_____

11. Can you describe the process of inhalation and exhalation?

_____

_____

_____

_____

12. What are the main harmful chemicals found in cigarette smoke?

_____

_____

13. How does smoking affect lung function and the efficiency of the respiratory system?

_____

_____

14. Why is cartilage important in the structure of the human body?

_____

_____

15. What is the role of ligaments in maintaining the stability of joints?

_____

_____

16. What is the difference between aerobic and anaerobic respiration?

_____

_____

17. What is the function of the ribcage in the human body?

_____

_____

18. Can you name some ways to maintain a healthy respiratory system and reduce the risk of lung-related diseases?

_____

_____

Colouring Sheet