STUDENTS’ WORKSHEETS

HUMAN BODY

✓ Joints, bones and muscles

✓ Systems of the body: respiratory, digestive and nervous

✓ A healthy body: food types, sport, taking care of your body

NAME:____________________

AGE-GROUP:________________

DATE:_____________________

Francesc Niella
CEIP MONTSERRATINA - Viladecans
Joints are the places where two bones join together.

There are three types of joints:
- **fixed** (skull) – **gliding** (vertebrae) – **movable** (knee, elbow, wrist...)

Joints allow movement

Ligaments connect bones in a joint

**MOVEMENT**
In the picture we can see a pair of **antagonist muscles**, when one is contracted, the other one is relaxed. That is possible thanks to the elbow, a movable joint.
ACTIVITY 1:
Complete the graph with the names of joints

ACTIVITY 2:
Write 5 correct sentences using the table below

<table>
<thead>
<tr>
<th>The knee</th>
<th>The skull</th>
<th>The elbow</th>
<th>The neck</th>
<th>The shoulder</th>
<th>The vertebrae</th>
<th>The wrists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is</td>
<td>Fixed</td>
<td>BECAUSE</td>
<td>They have a \textit{limited range} of movement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are</td>
<td>Movable</td>
<td>\textit{can move} freely</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gliding</td>
<td>\textit{can’t move}</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACTIVITY 3:

Ask and answer questions with your partner about joints

a) Where is / are the .......?

b) What type of joint is this?

c) Can you move it?

d) What muscles are involved?

e) Think of 3 other joints in your mother tongue and look them up in a dictionary, share these with your partner

✓ If you need them, use these **structures**:

a) Here is the… I’m touching my… This joint is…

b) It is fixed because... I can move it so… I’m not sure/ I don’t know

c) Yes / No / only a bit
Lesson 2: The Skeleton

We all have skeletons inside our body: that makes us vertebrates.

The skeleton has 3 main functions:

- **It protects** important parts of the body: the skull protects your brain
- **It lets you move**
- **It Supports** your body and keeps it upright by holding the different body parts in place

- Skull
- Shoulder blade
- Backbone
- Humerus
- Ribs
- Pelvis
- Femur
- Radius
- Ulna
- Tibia

Don’t worry, that’s not mine!!
More about bones:

- The body has a total of **206 bones**, 29 of them in the head
- The smallest bone is in your ear and the longest...yes! the femur
- Some people have 11 or 13 pairs of ribs instead of 12
- Bone or joints can be substituted with artificial ones: **protheses**
- **Bones change with age**, when you’re a baby they bend rather than snap, later they become stiff so they crack rather than bend.

**ACTIVITY 1:**

Complete the chart of the skeleton with the following bones:

Skull, shoulder blade, ribs, humerus, radius, pelvis, femur, tibia and backbone
ACTIVITY 2:

Fill in the gaps.

Version A

The skeleton has 3 __________ . The _________ protects the brain and it also helps you stand __________ . The _________ bone in the body is the femur and we have 206 ________ in our __________.

*Upright - functions - bodies – skull - longest - bones*

Version B

We have 12 pairs of ________ . They protect the _______ and lungs. The ______ bone is in our ear.

Baby’s ______ are _______________ ( 2 words ) than adult’s.

The ________ is longer than the __________.

ACTIVITY 3:

Review and locate with a partner the names of bones studied
Make comparisons between them
Ask and answer questions

✓ Use these structures:

The skull protects .....  
Which bone is it ? ( pointing...) , point to your...  
Where’s the ......?  
The *radius* is shorter than..... The *femur* is longer than.......  

Some students will answer questions about bones in front of the group ... so keep reviewing!!
Lesson 3: Muscles

Every action you do is carried out by a muscle.

We have about 640 muscles in the body.

As we have seen with joints they change in length, when contracted they get shorter and thicker, and when relaxed they get longer.

The muscular system:

- It enables us to move (as the skeleton)
- It gives the body shape
- It protects some important organs such as the liver
More about muscles:

- The biggest muscle is not the biceps is the gluteus maximus, and you know where to find it...yes, there!!
- Muscles don’t push, they can only pull or contract
- Muscles make up about two-fifths of the body’s total weight
- Larger and stronger muscles are a result of regular exercise and physical activities.

ACTIVITY 1:

Complete this mind map about muscles, bones, joints or other.

Humerus - Liver - Triceps - calves - elbow - pelvis - brain - chest - knee - abdominals - wrist
ACTIVITY 2:

Locate the following muscles and say if they are on the:

<table>
<thead>
<tr>
<th>ARM</th>
<th>LEG</th>
<th>UPPER BODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calves: ___________________</td>
<td>Shoulders: __________</td>
<td></td>
</tr>
<tr>
<td>Chest: _________________</td>
<td>Quadriceps: ____________</td>
<td></td>
</tr>
<tr>
<td>Triceps: _______________</td>
<td>Abdominals: __________</td>
<td></td>
</tr>
</tbody>
</table>

ACTIVITY 3:

Follow activity 2 orally with your partner

✅ Use these structures

The **biceps** is in the ...
Can you touch your....?
Flex your ......
Point to your....
Here, I have my....
When I play **tennis**, I use ....

ACTIVITY 4: Revision Lessons 1-2-3

Read the sentences carefully and write true (T) or false (F)

- We have 206 muscles in our bodies
- We can find the calves on the upper body
- The brain is an organ, not a muscle
- The elbow is a gliding joint
- The skeleton supports your body
- Our muscles make-up 10% of our body weight
The RESPIRATORY SYSTEM is made up of these main parts:

Nasal cavity – oral cavity – trachea – lungs and diaphragm

Breathing is with the heartbeat, the body’s most essential activity

We breathe with our lungs. When we breathe in, we take oxygen from the air and we breathe out oxygen and carbon dioxide.
Facts about breathing:

- Even **when you sleep, you breathe every 4 seconds**
- After much exercise, you breathe as fast as once each second
- **Yawning** happens when the body has been still for a while, so more oxygen is needed
- There’s always around **half litre of air in your lungs**

**ACTIVITY 1:**

Complete the text with the words given:

When breathing ______, we take oxygen from the _________. This oxygen goes to our _______ and distributed around the body. Then we breathe ______ and we expirate ________________

Out – lungs – carbon dioxide – air – in

**ACTIVITY 2:**

Label the picture with the different parts of the respiratory system
ACTIVITY 3:

Divide into 3 groups of 3-5 students

The teacher is going to assign an area of discussion, try to speak with your partners for 2-3 minutes.

Areas for discussion:

- Smoking and the respiratory system
- Exercise and breathing
- Asking and answering questions to your partners

Use these structures:

When you smoke, you breath in …
Smoking is ….. for your lungs

When you exercise, you breathing goes …..
Your lungs breath faster when ……

Why is breathing essencial?
How many times do you breath in a minute? And in an hour? In a full day?
When do you yawn? When I’m ……
Is breathing involuntary?
Lesson 5: Digestive system

The body needs **food** and **drink**

**Food** contains many substances that help the body grow and repair. **Drink** is needed to replenish the supply of water in the blood.

Parts of the digestive system:

- Mouth
- Salivary glands
- Throat
- Liver
- Stomach
- Small intestine
- Large intestine
- Rectum
Timeline of digestion:

- **0 hours:** food is chewed and swallowed
- **1 hour:** food is mixed with acids in the stomach
- **4 hours:** food has left the stomach and passed to the small intestine
- **10 hours:** leftovers begin to collect in the last part of the system
- **16-20 hours:** faeces pass through the anus and out of the body

ACTIVITY 1:

Fill in the gaps:

Version A

My teeth break the ________ into small pieces. The food is mixed with ________ in my _________. Food goes down the ________ and mixes with ________ in the stomach. Nutrients in the food pass from the _________ into my blood. Finally, food that can’t be digested comes out of my body when I go to the ________


Version B

The body needs to breathe fresh ________ every few seconds, but it cannot live of it alone. The body ________ food which contain ________ used to help the body_______. Drink is needed to fill up the supply of ________ in the ________
ACTIVITY 2:

Match Column A with Column B, if possible add more examples

A

1. The longest part of the body is
2. The liver makes
3. Most food has passed to the small intestine
4. We need to eat

B

- to provide energy for life processes
- within 4 hours
- the small intestine
- bile to help digest fats

BLESS YOU!!!!!!
ACTIVITY 3:

Work with a partner:

Ask and answer questions about the digestive system: parts, location, timeline, facts...

Discuss the importance of a good intake of food, digestion, resting...

Use these structures:

✔ Where’s your stomach? / Point to your throat / Can you find your...?
✔ Is the heart part of the digestive system?
✔ Within 1 hour, food is ... within 20 hours ...

✔ Food and water are important for...
✔ We need to eat and drink because ...
✔ The stomach does...
✔ When we are digesting food, blood is ...
Lesson 6: The nervous system

- The nervous system sends millions of signals along the nerves.
- Nerves can go as fast as 100 m/sec
- Information is passed by the neurotransmitters, they communicate nerve cells
- There is a part that controls the others: the brain

More Brain facts:

- The left part of the brain is good at language and maths and the right at art and music
- Your brain keeps working when you are sleeping, so the heart keeps beating and the lungs breathing
- An average brain weighs about 1.4 kgs and men have larger brains than women but that doesn’t mean they are more intelligent...are they??
ACTIVITY 1:

Complete the chart as in the example:

- **You touch a very hot object**

1. Nerves at your finger sense the hot object

2. Brain receive and then send signals

3. You withdraw the hand almost immediately

- **A ball is coming to your face**

1. 

2. 

3. 

Your brain sends signals back: close your eyes and raise your hands

Your sight (visual nerves) see the ball and sends signals to the brain

You close your eyes but also try to avoid the impact by raising your hands
ACTIVITY 2:

Match these concepts with its definition

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal nerve</td>
<td>Is the <strong>organ</strong> that <strong>controls</strong> the rest</td>
</tr>
<tr>
<td>Cervical nerve</td>
<td>It’s the <strong>main nerve</strong> linking the body and the brain</td>
</tr>
<tr>
<td>Brain</td>
<td><strong>Organ</strong> that breaks down <strong>food</strong></td>
</tr>
<tr>
<td>Stomach</td>
<td>Nerves <strong>close to the brain</strong> located in the neck and arms</td>
</tr>
</tbody>
</table>

ACTIVITY 3:

A) With your **partner find more examples as in activity 1** and follow the steps that the nervous system does.

B) **Ask and answer questions** about the nervous system

Use these structures:

- **How fast do nerves work?**
- How does the **brain communicate with nerves** located in the **leg**?
- The **brain is the most important** organ because...
- We remove the hand when touching something hot because...
ACTIVITY 4 : Revision lessons 4-5-6

Relate the image to its correct system:

Digestive -- Respiratory -- Nervous

All this science makes me sooooo hungry!!
Lesson 7: Food types

There are 7 food types:

<table>
<thead>
<tr>
<th>Water</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibre</td>
<td></td>
</tr>
<tr>
<td>Vitamins</td>
<td></td>
</tr>
<tr>
<td>Minerals</td>
<td></td>
</tr>
<tr>
<td>Proteins</td>
<td></td>
</tr>
<tr>
<td>Fats</td>
<td></td>
</tr>
<tr>
<td>Carbohydrates</td>
<td></td>
</tr>
</tbody>
</table>
Water: Is absolutely vital for us. **65% of our body is water!!**

Fibre: found in vegetables, bread and rice it **helps our digestion**

Vitamins: **Substances found in food**, necessary for growing and staying healthy.

Minerals: **Same as vitamins**, they help your body develop

Proteins: **The building blocks** of our body

Fats: Also known as lipids, vital for various **metabolic functions**

Carbohydrates: **Your body’s favourite ‘fuel’**.

Another way of organizing food is with the **food pyramid**:

- **On top of the pyramid** we find fats and sugars, to be eaten **once a week**

- Then we find food that should be eaten **every 2-3 days**.

- At the **base** of the pyramid we found the food that should be eaten **daily**
**Vitamins and minerals** can be found in food and are important for a huge amount of processes and functions. Look at the table:

<table>
<thead>
<tr>
<th>VITAMIN MINERAL</th>
<th>FOOD where you can find it</th>
<th>IMPORTANT for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>Milk, carrots and broccoli</td>
<td>Eyes, skin and immune system</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Milk, and sun... yes!!</td>
<td>Teeth and bones</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>Oil and brown rice</td>
<td>antioxidation</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>Liver and green vegetables</td>
<td>Blood clotting</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Citrus fruits, strawberries</td>
<td>Reducing the effects of a cold, antioxidant</td>
</tr>
<tr>
<td>Vitamins B</td>
<td>Meat, tuna, chicken, mushrooms, spinach, peanuts, legumes, whole grain cereals</td>
<td>Protein and carbohydrate metabolism, nerve and brain function</td>
</tr>
<tr>
<td>Calcium</td>
<td>Milk, yoghurt and cheese</td>
<td>Strong bones and teeth</td>
</tr>
<tr>
<td>Iron</td>
<td>Meats and liver</td>
<td>Making hemoglobin</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Spinach, broccoli, tofu and popcorn!</td>
<td>Releasing energy</td>
</tr>
<tr>
<td>Potassium</td>
<td>Peanuts, bananas and green beans</td>
<td>Fluid balance</td>
</tr>
<tr>
<td>Zinc</td>
<td>Turkey and peanuts</td>
<td>Growing, digestion and metabolism</td>
</tr>
</tbody>
</table>
Facts about food and diet:

- The contents of the food are measured by Kcal (calories); a child aged 6-10 needs 1800 calories per day, a **woman 2000** and a **man 2500**.
- Taking into account the previous figures, we should eat **55 grams of protein, 230 of carbohydrates, 70 of fat and 24 of fibre every day**.
- Eating **less than 1200 calories** a day is negative for our development, but eating **more than 3000** is also potentially dangerous.

Example of daily meals:

**MONTSERRATINA RESTAURANT**

**BREAKFAST:**
Glass of milk with 4 biscuits
Banana- apple or pear

7:00

8:00

**400 cal.**

**MID–MORNING**
Small juice
Small sandwich with salami – ham – cheese (playground break)

9:30

10:30

**250 cal.**

**LUNCH:**
Pasta – Rice – Pulses – Salad - Vegetables
Meat - Fish
Yoghurt, fruit, 2 slices of bread

13:30

14:30

**800 cal.**

**AFTERNOON SNACK:**
Bread and chocolate – nuts – cereal bar

17:30

18:30

**150 cal.**

**DINNER:**
Vegetables - salad
Fish and Yoghurt and fruit

19:30

20:30

**400 cal.**
ACTIVITY 1:

Discuss the following diet with your group and decide if it’s balanced:

Use the following criteria:

✓ This meal is balanced because it has the right amount of ....  
✓ This meal has too much protein  
✓ In this meal there is a lack of vitamins / It is incomplete because ....  
✓ The diet has too many calories / the right amount / too few

The average science teacher diet

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BREAKFAST</strong></td>
<td><strong>AFTERNOON SNACK</strong></td>
<td></td>
</tr>
<tr>
<td>2 toasts with ham – salami – turkey</td>
<td>Glass of milk</td>
<td></td>
</tr>
<tr>
<td>A glass of juice</td>
<td>Small sandwich</td>
<td></td>
</tr>
<tr>
<td>1 yoghurt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 biscuits ( ok!, chocolate ones sometimes!)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MID-MORNING</strong></td>
<td><strong>DINNER</strong></td>
<td></td>
</tr>
<tr>
<td>Cereal bar</td>
<td>Bowl of salad</td>
<td></td>
</tr>
<tr>
<td><strong>LUNCH</strong></td>
<td>100 grs of fish</td>
<td></td>
</tr>
<tr>
<td>100 grs of pasta – pulses – vegetables – rice</td>
<td>1 apple - pear</td>
<td></td>
</tr>
<tr>
<td>125 grs of red meat – chicken – turkey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 yoghurt and 2 slices of bread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 apple – pear - banana</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now, complete or discuss these sentences:

✓ Having a glass of milk or a yoghurt in the morning contains the mineral......

✓ Where can you find vitamins in lunch? And in the dinner?

✓ Is it important to eat some fats? Do you find them in the diet?

✓ How many calories should a woman eat daily? And a man?
ACTIVITY 2:

Look for the following words in this wordsearch:

PROTEIN – VITAMIN C – FISH – CALORIE – PEAR

FIBRE – CALCIUM – MEAT – BREAD – ZINC

Look for more ‘secret’ words related to food... or not!!
ACTIVITY 3:

Put the following **items of food into the correct category**

<table>
<thead>
<tr>
<th>PROTEIN</th>
<th>CARBOHYDRATES</th>
<th>FATS</th>
<th>DRINKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHICKEN</td>
<td>BREAD</td>
<td>PASTA</td>
<td>OIL</td>
</tr>
<tr>
<td>EGGS</td>
<td>WATER</td>
<td>RICE</td>
<td>COLA</td>
</tr>
</tbody>
</table>
So, finally, the last lesson, and yes... it’s sports!!

Let’s remember some of them:

5 people play on each team, don’t run without bouncing the ball, it’s......

In this sport we use a ball and a net which is higher than tennis nets, it’s......

Eagle, Birdie, hole in one... green grass, clubs.... yes, it’s....

This sport was invented in England, and perfected by players such as Pelé, Di Stefano, Cruyff, Maradona and more recently Ronaldo, Ronaldinho, Leo Messi or Kaká, of course you know, it’s .........

So far, so good... but do you know the name of these sports??
But not everything is sports, there are many other leisure activities you can practise in order to stay active:

Playing outdoors with friends or family is a great way to stay active.

A park is like a playground, you can get all the exercise you need. Swing, climb, run about... have fun!

You can practise a martial art: judo, karate, tae-kwon-do and mugendo are the most popular.

After so much activity it is always advisable to sit down, rest, and do your homework!!!

Apart from doing your homework, there are other healthy habits:

- Sleep 9-10 hours per day
- Brush your teeth 3 times a day, and a mouthwash once a day
- Have a shower each and every day
- If you feel tired, ill, or have an injury... rest!
- Be sensible, eat a balanced diet and feel happy about who you are.
There are other things to avoid, and these are called health risks

- **Smoking** is very bad for your health, so please don’t smoke

- **Watching TV long hours** every day, it’s fun to watch some programmes but it’s not good to sit in front of it many hours a day.

- **Alcohol** affects your brain and in the long term you can damage your liver, please be sensible with alcohol

- **Avoid drugs**, they can be very dangerous to your health in many different ways

- **Take proper care of your body**, wash your hands often, dress your small wounds, rest when injured playing any sport, don’t force the body too much and stay safe in everyday situations.
ACTIVITY 1:

Read and answer the questions. Look for your score because here comes the...

Healthy life quiz

1. How often do you eat vegetables?
   A. never  B. sometimes  C. often  D. always

2. Do you sleep 8-10 hours a day?
   A. never  B. sometimes  C. often  D. always

3. How often do you play sports?
   A. never  B. sometimes  C. often  D. always

4. Do you brush your teeth after a meal?
   A. never  B. sometimes  C. often  D. always

5. Do you wash your hands before a meal?
   A. never  B. sometimes  C. often  D. always

6. How often do you have a bath or a shower?
   A. never  B. sometimes  C. often  D. always

7. How often do you walk to school?
   A. never  B. sometimes  C. often  D. always

8. How often do you listen to your science lessons?
   A. never  B. sometimes  C. often  D. always

Ask your teacher for the scores.
ACTIVITY 2:

Set up in groups of 3-4.

Your teacher will give you 2 topics to choose from:

Healthy habits

Avoiding health risks

Think of a list of any of them and start planning a display using real pictures, drawings, felt tip pens, markers...

You can start your work in the class but the display should be finished as ... yes, your favourite healthy habit, HOMEWORK!!

I hope you learned a lot of things about your bodies, so for now, bye, bye!!

Have fun with the unit, I really hope you enjoy it!

Francesc Niella, Nottingham, March 2008