

# Human Organ Systems

Name: \_\_\_\_\_

(Please ensure this booklet is in class every day.)

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1.

# Introduction

**Create a chart below to show what you know about ways of maintaining good health.**

- In the first section, draw the shape of a human body. Draw and identify all the internal organs that you know of.
- In the second section, outline five activities that you can do to stay in good health/shape.
- In the third section, outline as many things as you know that are harmful to the human body.
- In the fourth section, list the questions you want to find answers about in this unit on the Human Body.

<p>1.</p>	<p>2.</p> <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li></ul>
<p>3.</p> <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li></ul>	<p>4.</p>

# The Cell

1. What is the basic building block of all living things?

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2. What is tissue?

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3. What is an organ? Give an example.

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4. Define the word “system”? Give an example of one in the body.

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5. There are different types of cells that have different purposes. What is the function of the cells below? :

- Nerve cells \_\_\_\_\_

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- Red blood cells \_\_\_\_\_

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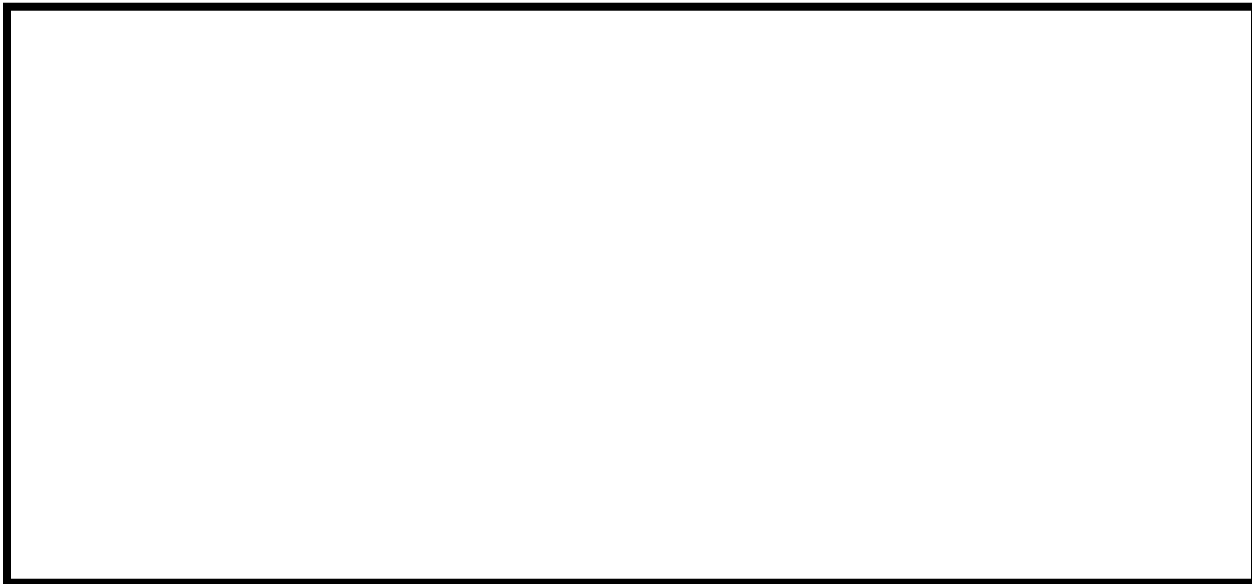
- White blood cells \_\_\_\_\_

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- Muscle cells \_\_\_\_\_

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6. Create a colour diagram of a cell and label its parts:



7. What is a microscope used for? \_\_\_\_\_

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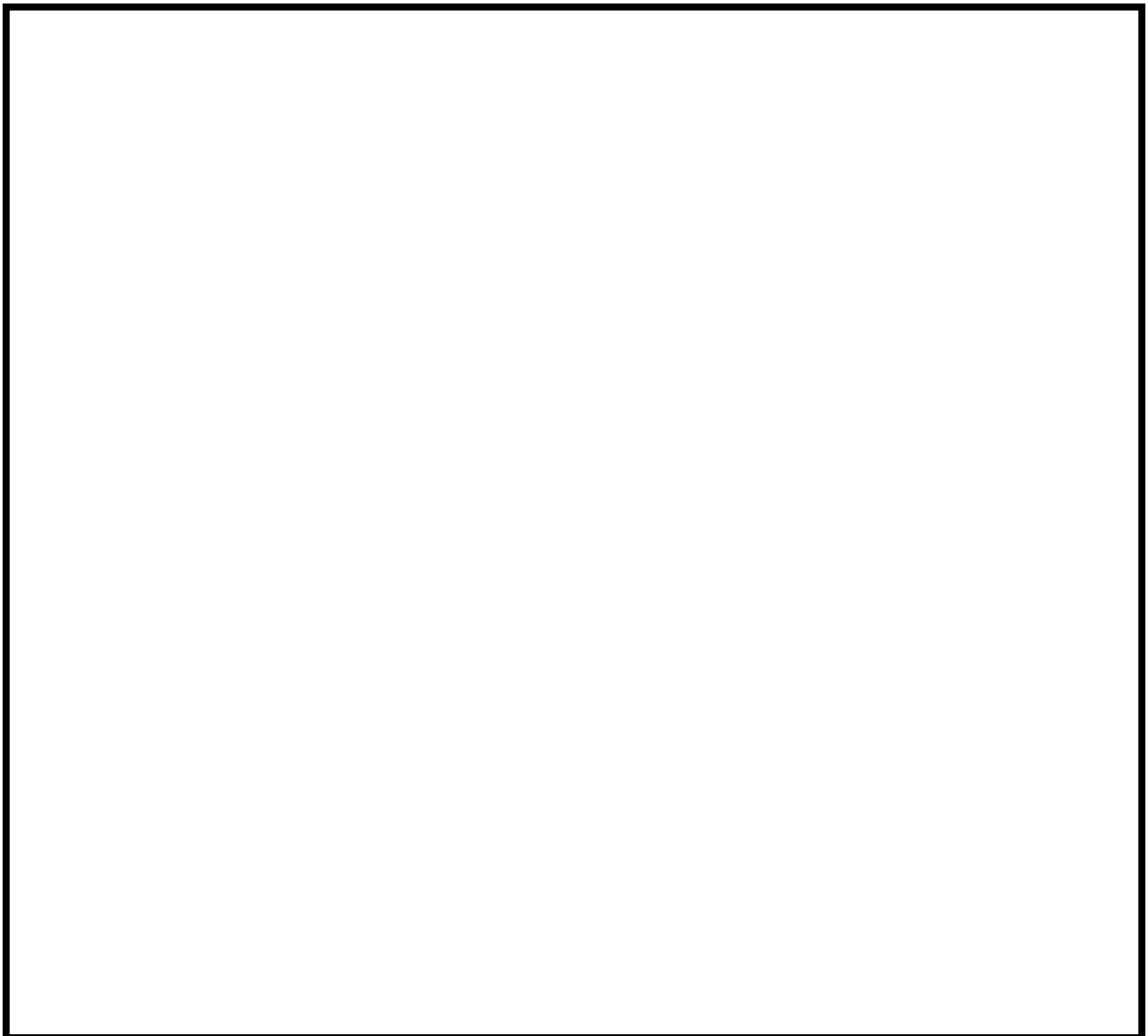
# The Digestive System

1. What is the role of the digestive system? \_\_\_\_\_

2. Explain how two other systems in the human body can support the digestive system:

- \_\_\_\_\_  
\_\_\_\_\_
- \_\_\_\_\_  
\_\_\_\_\_

3. Sketch the digestive system inside a drawing of the human body. Name the organs and the parts of the body that play a role in this system.



4.

**4. Write a descriptive passage outlining the journey of your meals through your digestive system. Don't forget to show each stop on the path the food travels. Describe what happens at each of these stops.**

- **The mouth:**

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- **The esophagus:**

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- **The small intestine:**

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- **The large intestine:**

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# The Respiratory System

**1. What is the purpose of the respiratory system?**

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**2. Outline the pathway that air takes when it enters the respiratory system.**

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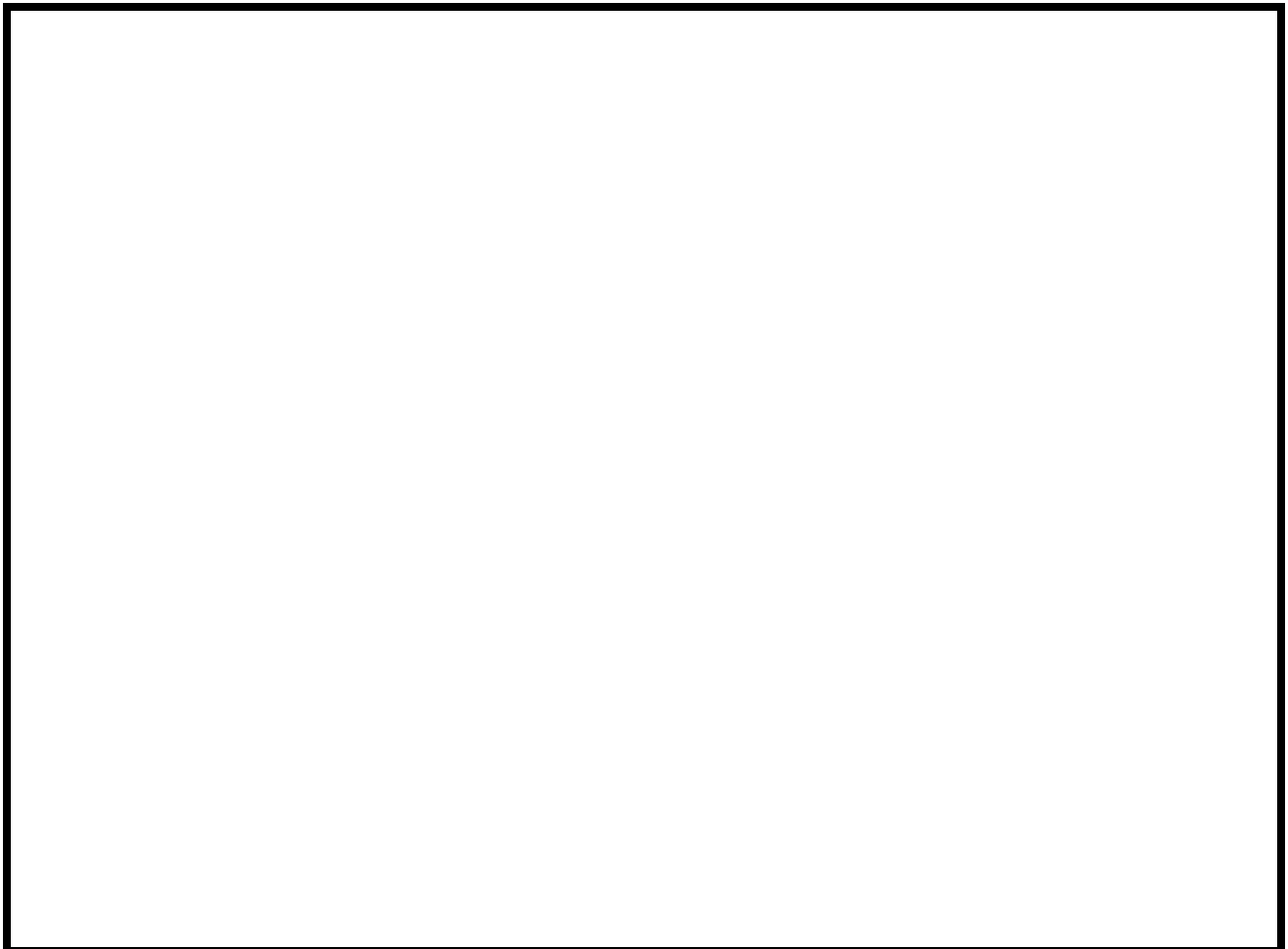
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**3. Sketch the respiratory system inside a drawing of the human body. Name the organs and the parts of the body that play a role in this system.**



# The Circulatory System

1. What is the role of the circulatory system?

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2. Describe the function of these different parts of the system:

- The heart:

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- The blood vessels: (a) the arteries and (b) the veins

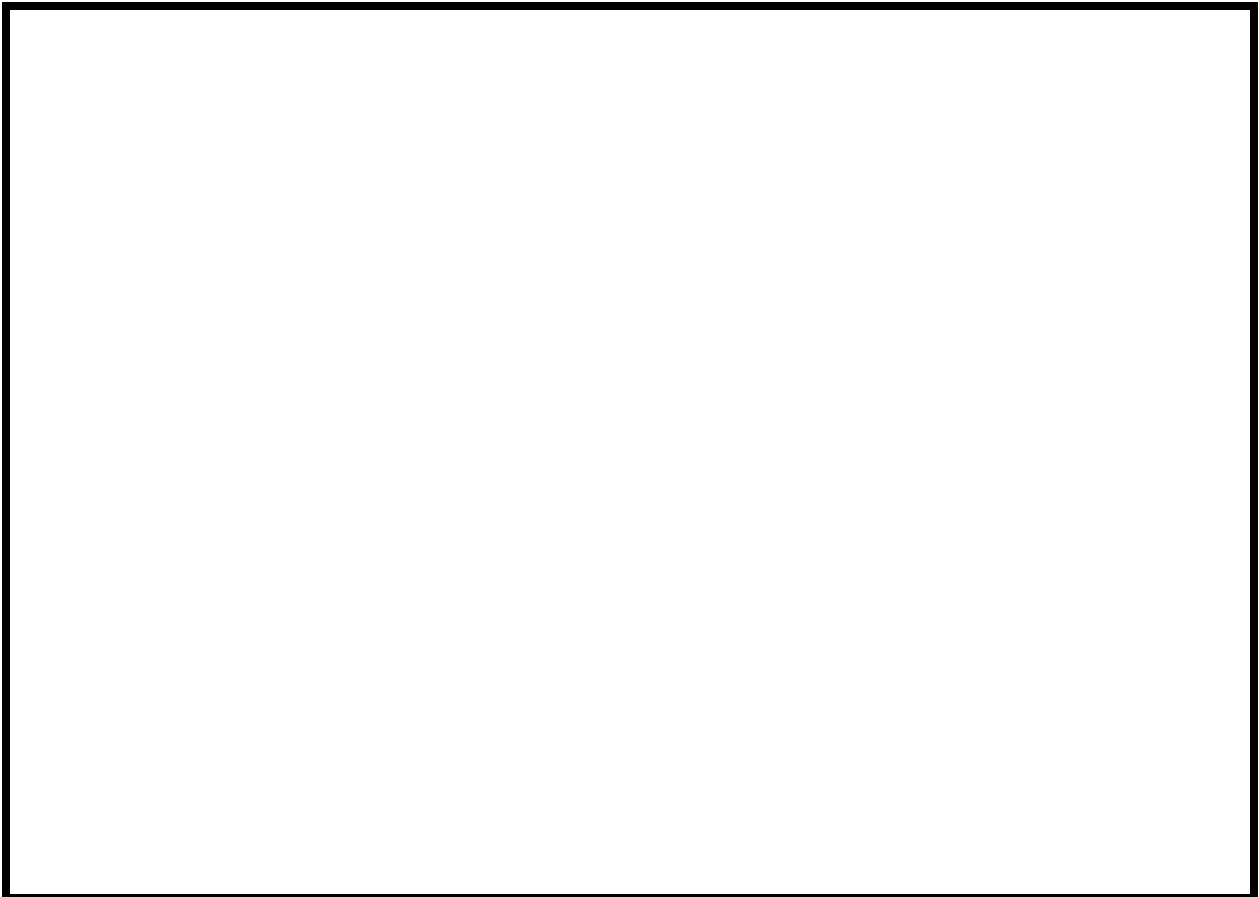
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3. Sketch the circulatory system inside a drawing of the human body. Name the organs and the parts of the body that play a role in this system.





**3. The purpose of blood cells:**

- **Red blood cells:**

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- **White blood cells:**

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- **Platelets:**

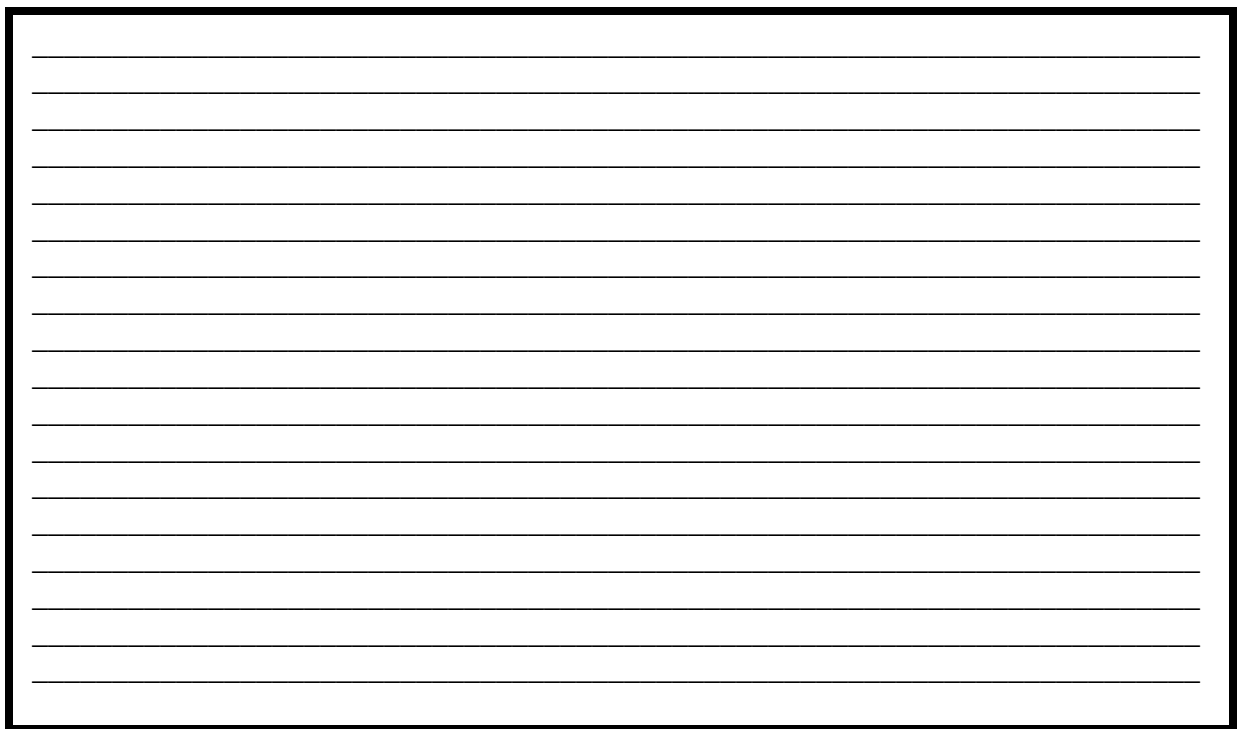
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**4. Count the number of times your heart beats in 1 minute (or in 15 s and multiply by 4). This number represents your resting heart rate. You can measure this rate on your neck, just under your jaw, or by placing two fingers on the inside area of your left wrist. Now run on the spot for 3 minutes, measure and record, on the bar graph below, your heart rate in the minutes following your exercise for 5 minutes at one minute intervals. How long did it take your body's heart rate to return to its resting rate (the one you started with)? \_\_\_\_\_**

**Number  
Of  
Beats**



**Resting 1 min 2 min 3 min Finish 1 min 2 min 3 min 4 min 5 min**

# The Nervous System

1. The brain carries out many tasks (jobs), some of which are automatic, while others are ones you need to think about. Give four examples of each type of task:

- An automatic task:

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- An action you need to think about:

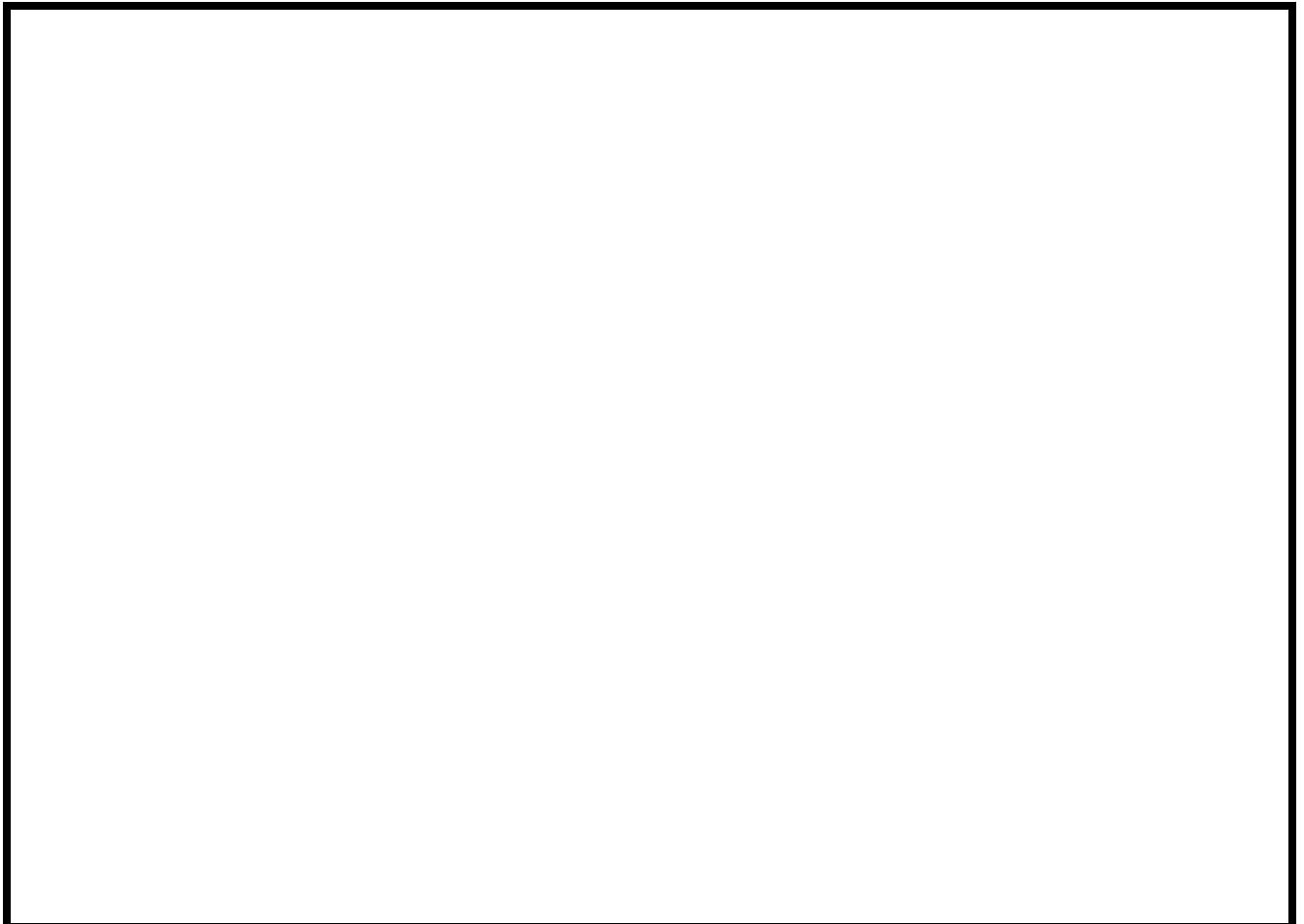
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2. Sketch the nervous system inside a drawing of the human body. Name the organs and the parts of the body that play a role in this system.

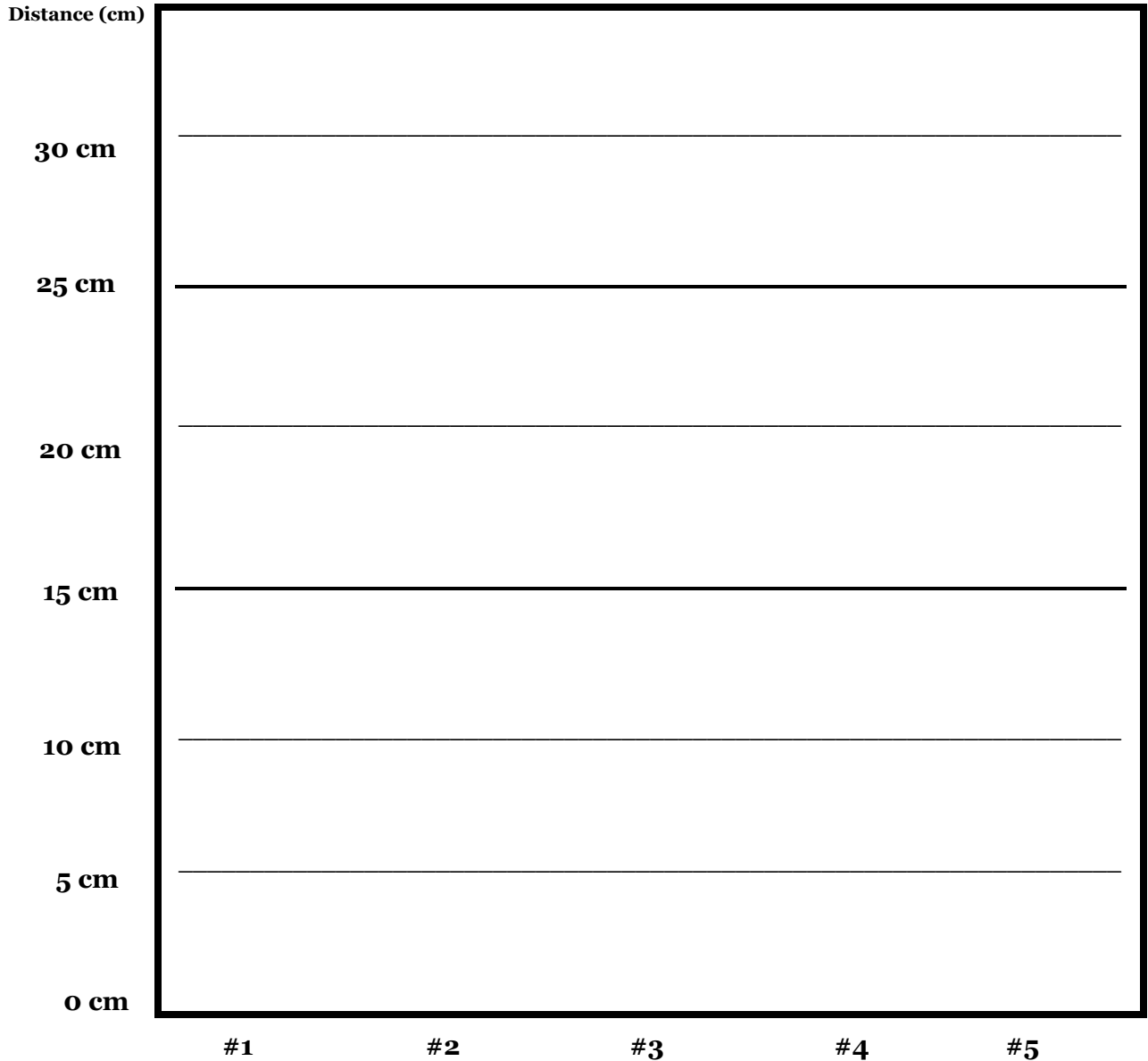


3. How does the brain communicate with other parts of your body?

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4. Do the experiment with a partner described in your text (p. 20) about the speed of your reaction time. Afterwards, complete the graph below to record your results.



5. In your opinion, how do you think your nervous system lets each of you catch the ruler?

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# Muscles and Bone

**1. What is the purpose of your skeleton?**

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**2. What is a joint? Give four examples of joints.**

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**3. Explain how muscles and bone work together with the nervous system to allow people to move.**

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**4. What are bones made of, both inside and out?**

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**5. Identify two muscles in your arm and explain how they work together.**

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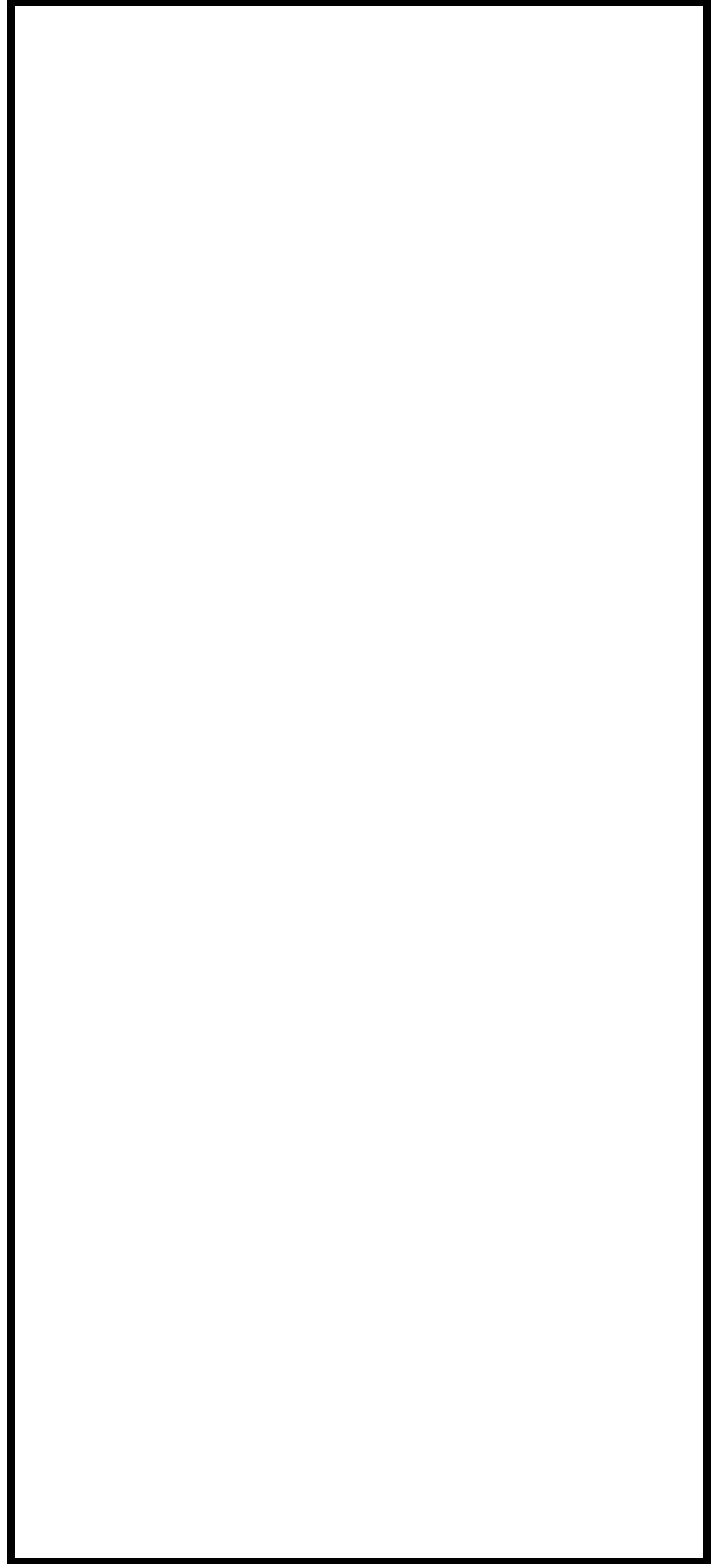
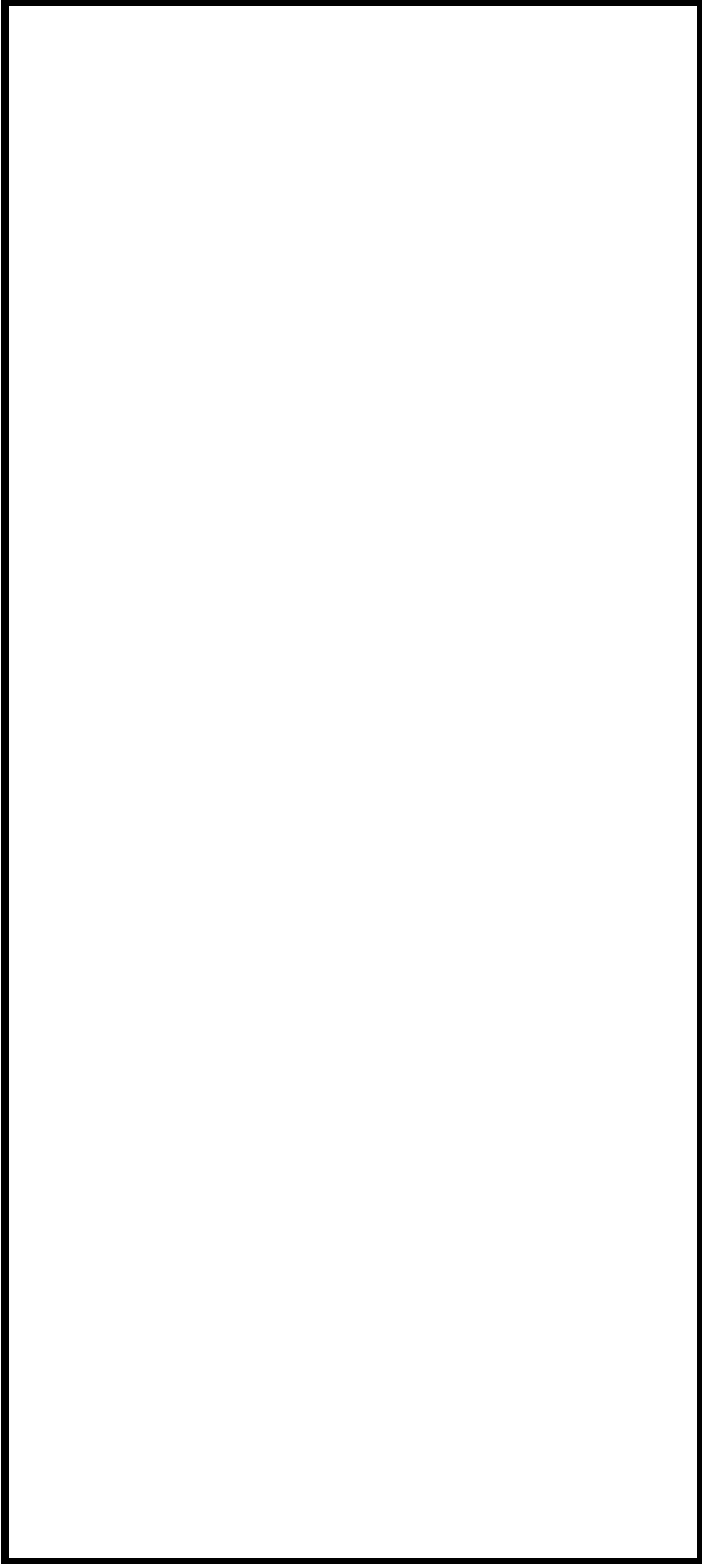
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**6. Draw a model of a skeleton below (include the major bones) as well as a model of the muscular system showing the location of muscle groups. Do a bit of research on the Internet or in another book to find the proper names of these parts.**



# Skin

1. What is the chief job of your largest organ, your skin, and how does it work?

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2. What are three other important jobs that your skin has?

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3. Copy the diagram of a skin sample, found on page 25, and label the parts.



4. Normally your skin rests at a temperature of 37°C. Suppose you take your temperature and that the thermometer shows 39.5°C. How would your skin feel? Why? Mention the role of sweat pores in your answer.

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# The Excretory System

1. What are the waste products made by your body and what are the systems used to dispose of them?

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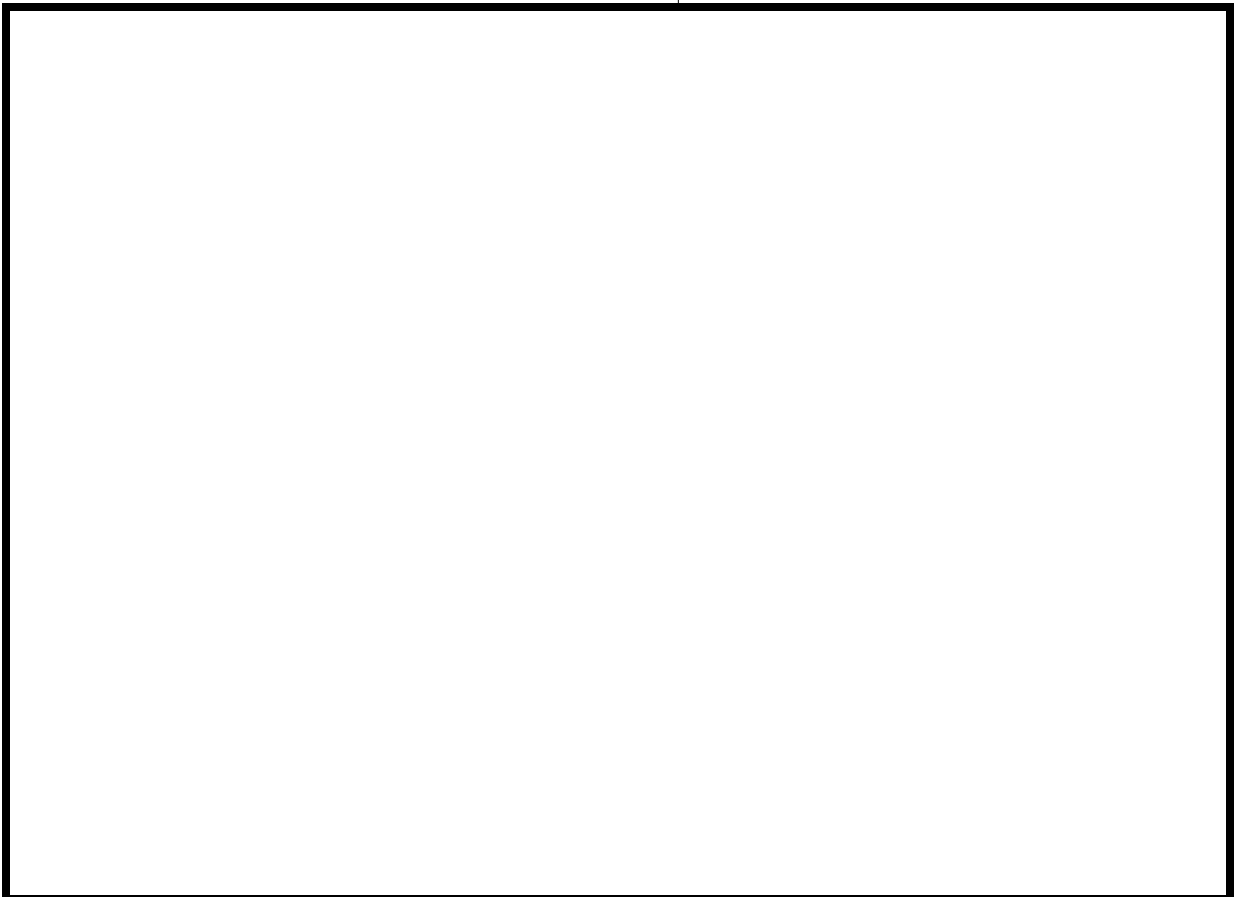
2. Describe the parts of the excretory system that are responsible for removing urine from your body

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3. Sketch the excretory system inside a drawing of the human body. Name the organs and the parts of the body that play a role in this system.



# Food and Nutrition

**1. What is a balanced diet?**

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**2. At times we can have problems with our health if we do not have a balanced diet. What are the risks for people if they consume, for example:**

- **Too much fat?**

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- **Not enough protein?**

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- **Not enough fiber?**

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- **Not enough water?**

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**3. In addition to a balanced diet, what else do we need to do to stay in good health? Why?**

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**4. What are some foods that a vegetarian can eat to ensure that he/she has sufficient protein in his/her diet?**

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# Cumulative Activity #1

Each year in Ontario about 90 000 children try smoking.

This habit contributes to the deaths of 12 000 people in the province each year.

(from The Ontario Curriculum: Science and Technology, 2007)

- Think about the money costs connected to a smoking habit.
- Think about the influences you know about that might persuade a person to try smoking or to avoid smoking. What would these sources recommend? One is provided to give you a start.
- Think about what information sources you could find that would help you make a good decision about smoking (two are provided to give you a start).
- Fill in the charts below and on the next page with your findings using internet sources and people or books you could read on the topic.

Costs	
Cost of one regular size package of cigarettes:	
Number of packages a person would buy in one week if he/she smoked 2 packages per day:	7 days x _____ = _____ packages
Number of packages bought in a year:	52 weeks x _____ packages per week = _____
Cost of cigarettes in a year:	
Cost of cigarettes after 30 years at this rate:	

Sources of Influence, Advice or Pressure	
Influences Not To Smoke	Influences To Smoke
Parents: - could provide advice against smoking since they are important figures in my life; - they could also tell me stories about family health histories, like relatives who suffered from smoking illnesses	

# Cumulative Activity #1

(Try a Google search like this: "smoking information for students Canada")

Information source	What I learned about smoking risks
The Lung Association <a href="https://www.lung.ca/protect-protegez/index_e.php">https://www.lung.ca/protect-protegez/index_e.php</a>  (choose the "Smoking and Tobacco" tab)	
Healthy Canadians Government of Canada site <a href="http://healthycanadians.gc.ca/health-sante/tobacco-tabac/index-eng.php">http://healthycanadians.gc.ca/health-sante/tobacco-tabac/index-eng.php</a>	

## Cumulative Activity #2

Scientific advances in health and technology are changing our lives every year.  
Are all scientific changes an improvement on our lives?

To complete this activity:

- You will choose a topic to study using internet sources, books, articles and other media items such as advertisements. Examples of topics: New Running Shoe styles, Outdoor and Indoor video technology (billboards, television), Motion Capture/Motion Detection Video games, Internet-based Social Media, Smartphones, or another topic of your choice.
- **Evaluate (pros and cons) the effects of this scientific improvement on the human body.**
- Consider the different perspectives of people that are involved in the technology, including your own. Others include the developers of the technology, advertisers, children and young people, parents, school staff.
- Gather your rough work in the chart below and use the chart to write a TWO (2) paragraph judgment about this new technology on the lined paper on the next page.

Name of the Technology you chose: \_\_\_\_\_

Perspective being studied	Effects, both positive or negative, on the human body that people with this perspective might notice or emphasize.



# Experiment Reports

## Onion Cell Microscope Study (pages 6-7 in the text)

Follow the steps in the text in groups of two. Record your findings below.

*Materials*

*Procedure Steps*

*Observations about the cells you see*

*Diagram of what you see*  
*Add labels like the ones at the top of page 6*

## Lung Capacity Study (pages 12-13 in the text)

Follow the steps in the text in groups of two. Record your findings below.

*Materials*

*Measurement of the water displaced:*

*What do you think you could do to have a greater lung capacity? Write your ideas below using human body system vocabulary.*

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# Experiment Reports

## **Breathing Rate Experiment** (page 14 in the text)

Plan an investigation to find out how exercise affects your breathing rate.

Use Human Body System vocabulary whenever possible.

*Question you will study:*  
(i.e. "How will doing sit-ups change my breathing rate?")

*Materials:*

*Prediction of what you might see:*

*Procedure Steps:*

1.

*Observations and Conclusions: What happened and why do you think it happened?*

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*Diagram (before, during and after):*



# Experiment Reports

**Muscles and Bones: Design model of the human arm** (page 24 in the text)

Plan an investigation to find out how exercise affects your breathing rate.

Use Human Body System vocabulary whenever possible.

*Special Human Body system vocabulary I will use to describe my construction:*

*Materials:*

*Procedure Steps:*

- 1.

*Observations and Conclusions: How did your arm function? How could you improve it next time?*

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*Labeled Diagram:*

# Research Topic

To complete your work on the Human Organ Systems unit of study, you will research a human illness or disease, using at least 2 different sources for your information (books, internet, interview with a doctor or nurse, newspaper/magazine articles, etc.). Some points to consider, for example, are:

- What body system(s) does this illness affect?
- What are the symptoms?
- How do people contract this illness?
- How are people treated for this illness? Is there a cure?
- How widespread is this illness? Does it affect a large number of people? A particular age group?
- Can you do a diagram or a graph that would help to explain an aspect of this illness?

Your information will be written up in paragraph form, include introductory and concluding paragraphs, and should be approximately 2 pages in length. The rough copy will be peer edited on \_\_\_\_\_. The good copy will be written up on the sheets provided in this unit book, and the due date for this work is \_\_\_\_\_.

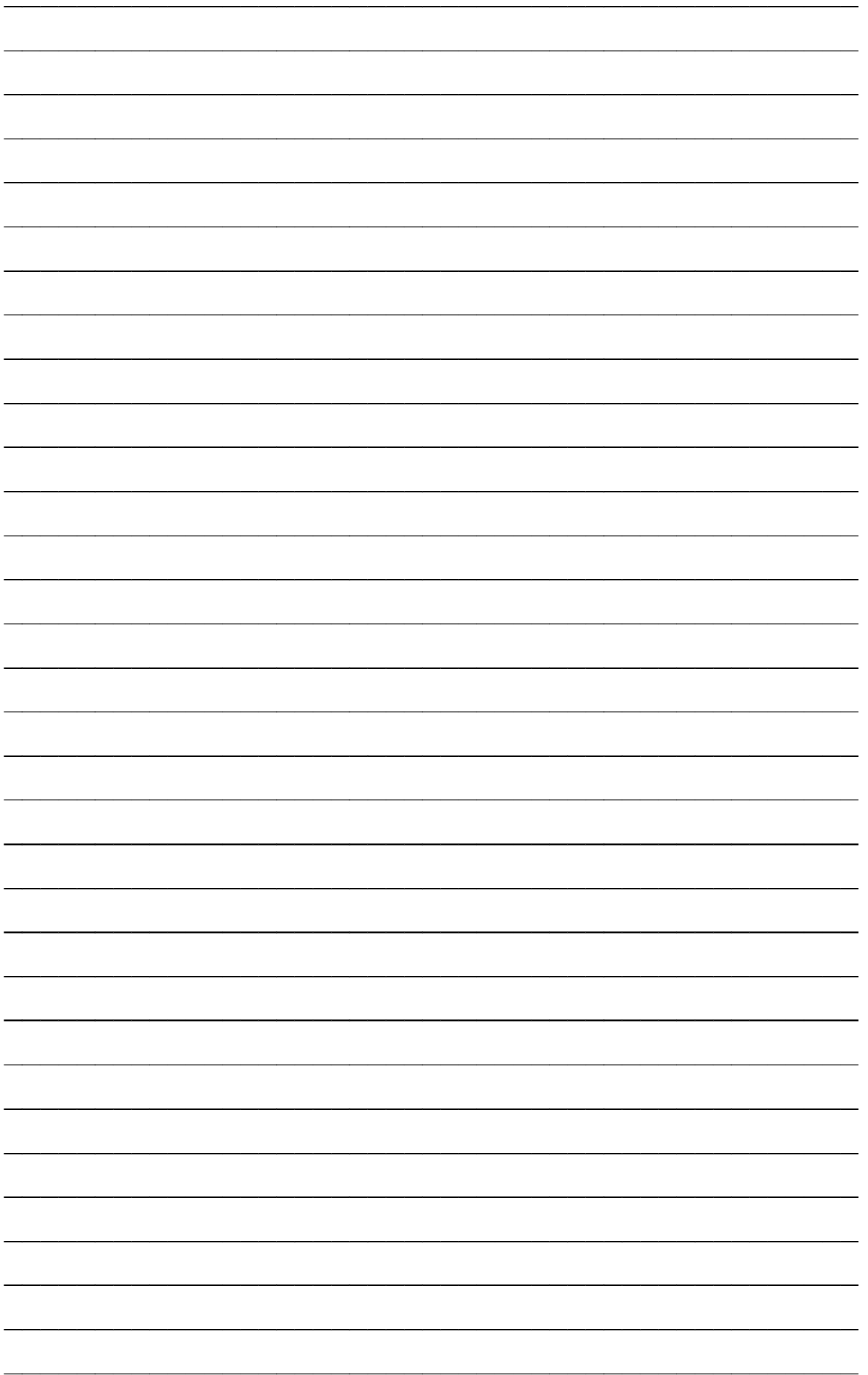
Here is a list of possible topics but remember that there are many more:

- SARS
- The common cold
- Polio
- Malaria
- Different forms of cancer (lung, breast, leukemia, colon, melanoma, etc.)
- Osteoporosis
- Tay-Sachs disease
- Hemophilia
- Crohn's disease
- Multiple sclerosis
- Diabetes
- Asthma
- Epilepsy
- Heart attack
- ALS (Lou Gehrig's disease)
- Hepatitis
- Cholera
- West Nile virus
- Guillan-Barré syndrome

The topic I have chosen is \_\_\_\_\_







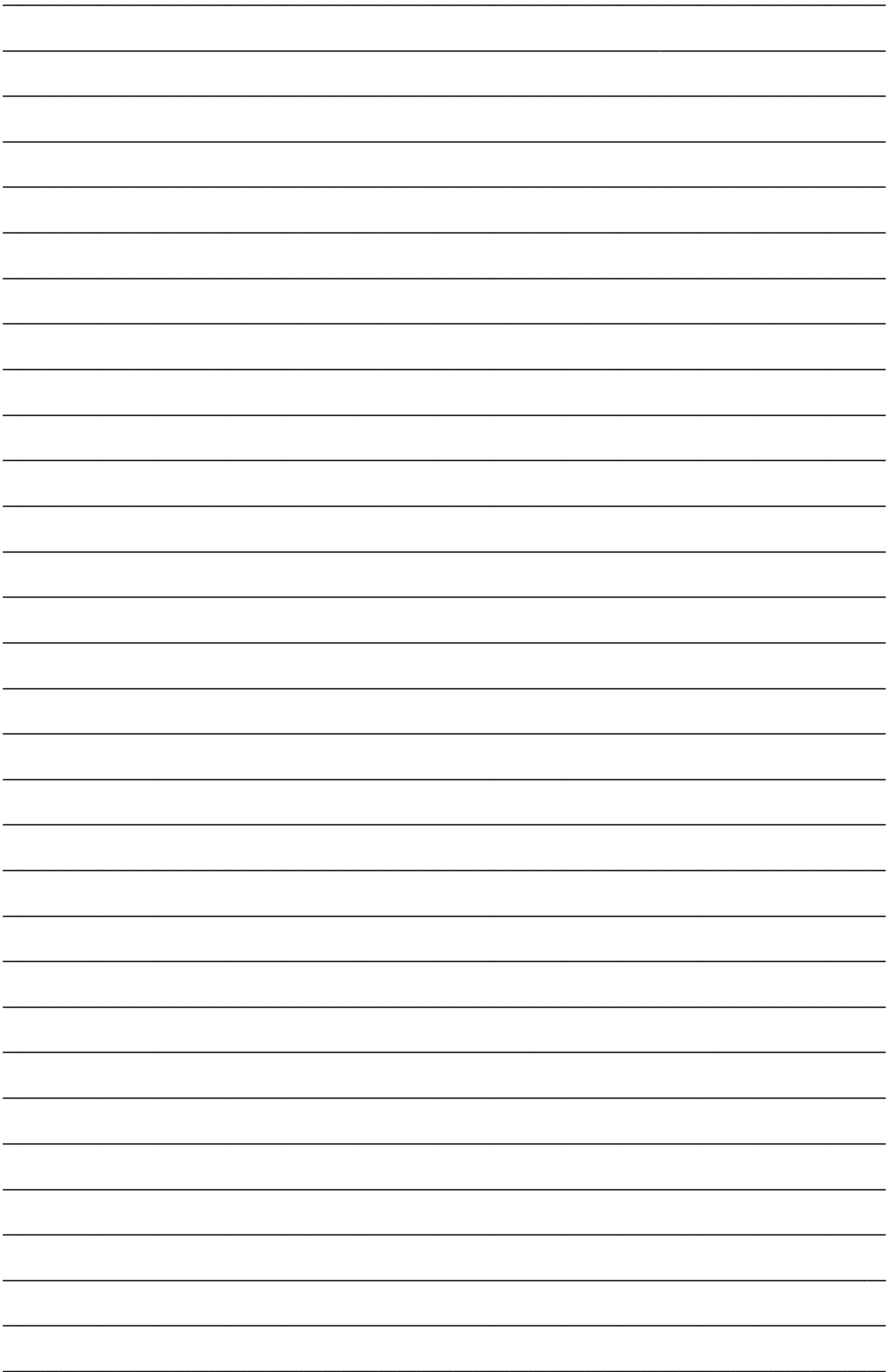
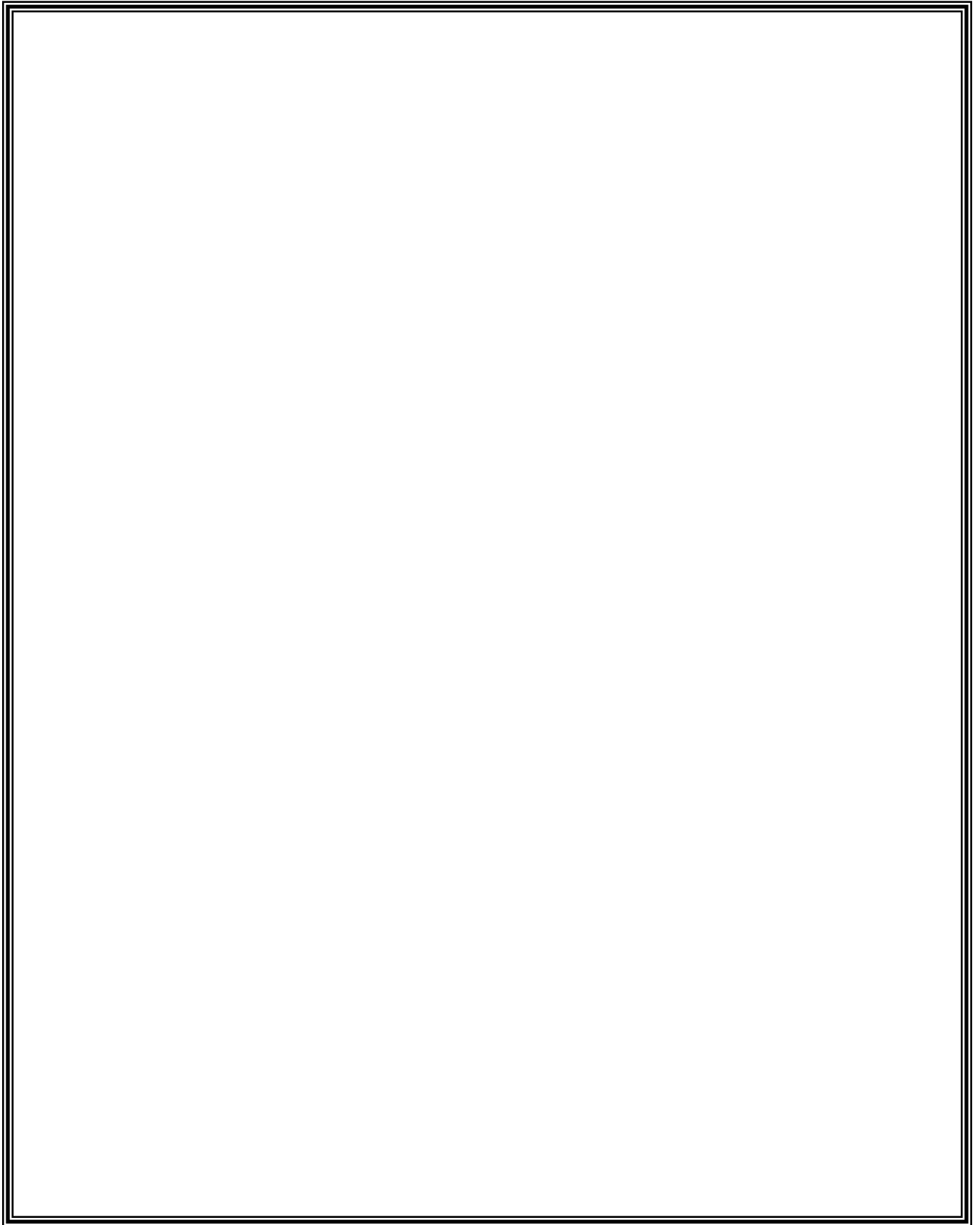


Diagram or Graph showing an aspect of the illness



## Human Organ Systems Unit Rubric

Name: \_\_\_\_\_

Score: \_\_\_\_\_

Levels	1	2	3	4
Content of Booklet questions	Information is much too brief, with most of the main points left out. Hardly any care has been taken in the completion of written work (ex: neatly, of sufficient length, with appropriate chart details).	Information is occasionally detailed, but a number of the main points have been left out. Little care has been taken in the completions of the written work ex: neatly, of sufficient length, with chart details).	Information is detailed with most of the main points clearly described. Care has been taken in the completion of the written work (ex: neatly, of sufficient length, with appropriate chart details).	Information is detailed, with all the main points clearly and thoroughly described. Great care has been taken in the completion of the written work (ex: neatly, of sufficient length, with chart details).
Cumulative Activity #1 on Effects of Smoking	The charts have major gaps in them in many areas. The evaluation of the influences and the survey of information sources on smoking are very brief and lack focus. Some items may not complete at all.	Attempts to organize charts, but the data is not always complete or thorough. The evaluation of the influences and the survey of information sources on smoking feature some details but could show more specific comments.	Organizes most information in charts. The evaluation of the influences and the survey of information sources on smoking include a good number of pros and cons. There is evidence of balance in your examination of influences.	Organizes information in thorough charts. There is a highly reflective evaluation of the influences and a strong survey of information sources on smoking.
Cumulative Activity #2 on The Effects of a Scientific Technology Innovation on Human Body Systems	The innovation choice is not selected well or at all. The perspectives are two or fewer and do not show consideration of the positive and negative effects on the body. The final judgment is not written.	A valid innovation choice is clearly made. More than two perspectives are outlined, but briefly. A few pros and cons of the innovation are presented. Some repetition may occur. The final judgment is initiated but has only some simple reasons.	The innovation choice is clearly explored with a good number of benefits and drawbacks presented from several perspectives. The final judgment is written with good focus and presents solid reasoning.	Insightful positive and negative impacts of the innovation are presented thoroughly. All of the perspectives are considered with the most relevant details. The final judgment has convincing reasoning about the overall impact.
Experiment Reports	Two or more of the experiment reports are unfinished or not started. The reports have limited use of colour and display only a few key vocabulary terms from the unit.	The experiment reports are completely with minimal detail. One may be incomplete. The use of colour, clarity and vocabulary is inconsistent.	The experiments reports are complete. Proper vocabulary and labeling are evident. Observations and conclusions are relevant and show effort to be clearly presented.	The experiments reports are completed with a high level of detail. The self created experiment is inventive and all reports feature excellent clarity in the observations and conclusions.
Research on a specific human illness or disease, _____	Research is much too brief, and is not organized according to the sub-topics. It covers few of the points. Diagram is unclear and done in haste.	Research has some problems with organization and clarity. It covers just some of the points. A fairly good diagram, but the colouring and labels could be clearer.	Research is clearly written and organized, and covers most of the points required. A good, well-coloured diagram with complete labeling.	Research is very well written and organized, and covers all or almost all of the points required. An excellent, clear, coloured diagram in which all areas have been well identified.
Oral Presentation	Information presented to the class in a very hesitant manner.	Information presented to the class in a somewhat hesitant manner.	Very good, knowledgeable presentation.	Excellent, confident and extremely knowledgeable presentation!