**Cell Division and Cancer**

Please answer the following questions after exploring the website: <http://www.abpischools.org.uk/res/coresourceimport/resources04/cancer/index.cfm>

**Overview**

1. How many cells are in your body?
2. How many chromosomes are in each body cell?
3. Within \_\_\_\_\_\_\_ minutes of fertilization, the cell copies itself to make two cell or \_\_\_\_\_ occurs.
4. What is cancer?

**Cells, the body, and the growth**

1. How big is a human cell?
2. How big is DNA?
3. What is DNA? Instruction that control the cell.
4. Section of DNA is called genes. They have information necessary to make \_\_\_\_\_\_\_\_\_.
5. DNA bases have complementary pairs. Adenine pairs with \_\_\_\_\_\_\_\_\_ and Guanine pairs with \_\_\_\_\_\_\_\_\_\_\_\_.
6. How long is DNA present in most human cells?

**Cells, the body and growth**

1. Different parts of the cell carry out different functions. Write the functions of following parts: cell membrane, mitochondria, cytoplasm, and nucleus.

**Cell Division: Mitosis and Meiosis**

1. Define Mitosis. How many cells are produced and are they identical?
2. Define Meiosis. How many cells are produced and are they identical?
3. What Down Syndrome? Explain how it is caused.

**Chromosomes and Genes**

1. What is chromosome? How long is it?
2. How is malignant tumor caused?

**When Cell division goes wrong**

1. Define following terms.

Tumor:

Benign:

Malignant:

1. Fill in the blank.

Our bodies are made up of small units called \_\_\_\_\_\_\_\_.. Each one is controlled by a \_\_\_\_\_\_\_\_ that contains the genetic code in \_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are dividing all the time. Normally they are prevented from over-multiplying by the \_\_\_\_\_\_\_\_\_. However, sometimes they start multiplying uncontrollably and grow into a \_\_\_\_\_\_\_\_\_. If they are \_\_\_\_\_\_\_\_\_\_\_\_, they can spread to other parts of the body.

**What causes cancer?**

1. Define mutation.
2. Look at picture 15. Part A shows the **nucleus** of an imaginary **cell**. The nucleus contains **genetic** material in the form of **chromosomes**.

a) How many chromosomes does the imaginary cell in picture A contain?

b) Before **mitosis**, there is an increase in genetic material. Why do you think this happens?

c) How many chromosomes would each of the new cells (part C) have?

d) Why are the cells formed by mitosis genetically identical?

e) Explain why cancer cells keep growing even though the original **mutation** happened in only a single cell.

1. What causes mutation?

**Treatment for Cancers**

1. Look at the graph in picture 18 (graph) and then answer the questions.

a) Name the cancer that has the worst survival rate?

b) Name the cancer that has the best survival rate.

c) What is the five-year survival rate for cancer of the cervix?

d) Breast, testicular and skin cancers have good survival rates. Suggest why this may be the case.

23. Write three different ways cancer is treated. Describe each.

24. How is breast cancer usually treated?

25. What are some side effects of chemotherapy?

26. Out of typical 100 cancer cases, how many are usually cured? \_\_\_\_\_\_\_\_\_\_

**Radiation: Cause and Cure**

27. Explain how ionizing radiation can cause cancer.

28. Why are sources of alpha particles relatively safe if they are outside the body but very dangerous if they get into the body or onto the skin?

29. What is radiotherapy?

30. The ionizing radiation can damage healthy tissues. So why are people willing to have radiotherapy?

Complete the quiz on slide #13. Use A,B,C instead of buttons. Answers only.