

SENIOR BIOLOGY

The Search for Better Health

NAME _____

ORGANISATION _____

DATE _____


INSTRUCTIONS

1. Make sure you read the bold text in boxes throughout the worksheet as they contain important information

These boxes contain instructions explaining how to complete the next section of your worksheet

2. To find a particular disease or specimen you may need to refer to its specimen number. Once you have found the bay, the specimen will have a purple label to help you locate it on the shelf.

e.g **1312.17**



specimen number bay number (refer to map)

3. Detailed information about a specific disease or specimen will either be found on an info sheet, poster or next to the specimen itself. The following symbols are used throughout the worksheet.



Info sheet

*A4 displays on table
nearest to specimen*



Poster

*located throughout
museum*



Observation

*Find exhibit and
describe features*

IMPORTANT


*Real people have generously donated their body so that medical scientists can learn about health and disease.
Our donors deserve the utmost respect and admiration for their invaluable contribution to medical science.*

NOTES

INFECTIOUS DISEASES

There are six main types of disease causing agents or pathogens: prions, viruses, bacteria, protozoans, fungi, and parasites. These pathogens vary greatly in size and shape, and also in the type of diseases they cause in their host.


Find information about each of these specimens or diseases and identify which type of pathogen they are caused by (circle your selection)

HIV/AIDS
3035.7 


PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE

Malaria 
microscope room

PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE

Hydatid Disease 
3000.14

PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE

Typhoid 
492.15


PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE

Lung- Aspergillosis 
2130.14


PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE

Syphilis 

PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE


Cryptococcosis 
2190.9


PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE

Variant Creutzfeldt-Jacob Disease 
HINT: the smallest pathogens

PRION VIRUS BACTERIA PROTOZOAN FUNGI PARASITE


Choose one disease from the following list of infectious diseases to examine in detail and complete the following (circle your selection)


HIV/AIDS 3035.7 


Cryptococcosis 2190.9 


Syphilis 

Smallpox 

Tuberculosis 924A.14 


Diphtheria 299.15 

Hydatid Disease 3000.14 

Typhoid 492.15 

Lung- Aspergillosis 2130.14 

| DISEASE NAME | | | | | | |
|---|-------|-------|----------|-----------|-------|----------|
| Pathogen <i>circle disease causing agent</i> | PRION | VIRUS | BACTERIA | PROTOZOAN | FUNGI | PARASITE |
| Cause & Transmission | | | | | | |
| Symptoms | | | | | | |
| Treatment, prevention & control | | | | | | |
| What is something interesting, surprising or useful you've discovered about this disease? | | | | | | |


Find a specimen, photo or diagram of the disease you have studied above to observe and complete this section 


Describe the appearance and disease changes evident in this specimen.


NON-INFECTIOUS DISEASES


Non-infectious diseases can be caused by various factors and are often the result of an interplay of genetics and lifestyle. Many of these diseases are closely related to lifestyle factors such as smoking and obesity and much can be done to decrease your risk through positive lifestyle habits.


Choose one non-infectious disease to examine in detail and complete the following table
(circle your selection)


Rheumatoid arthritis 
554.6


Breast Cancer 
350.20


Gangrene 
1450.17


Emphysema 
156.9

Asthma 
1872.9

Prostate Cancer 
512.18

Myocardial infarction 
1312.17

Lung Cancer 
722.8

Cerebral infarction 
485.12

| | |
|--|--|
| DISEASE NAME | |
| Cause & Occurrence | |
| Symptoms | |
| Treatment & management | |
| What is something interesting, surprising or useful you've discovered about this disease? | |

Find a specimen, photo or diagram of the disease you have studied above to observe and complete this section



Describe the appearance and disease changes evident in this specimen.

INHERITED DISEASES

Inherited diseases are those caused by genetic factors and include Down syndrome, cystic fibrosis, colour blindness, haemophilia, and many more. They may be the result of a mutation in a single gene or a chromosomal abnormality.

Select one inherited disease to investigate by viewing relevant specimens and associated information
(circle your selection)

Cystic Fibrosis



Down Syndrome



Neurofibromatosis



What is the cause of the disease? How many people does it affect?

Describe the main symptoms and effect.

NUTRITIONAL DISEASES

Nutritional diseases include nutritional deficiencies (e.g. scurvy) as well as dietary disorders (e.g. anorexia, obesity).

Select one nutritional disease to investigate by viewing relevant specimens and/or information
(circle your selection)

Goitre

1980.22



Osteoporosis

598.6



Scurvy



| | |
|-----------|--|
| Cause | |
| Symptoms | |
| Treatment | |

Find a specimen, photo or diagram of the disease you have studied above to observe and complete this section



Describe the appearance and disease changes evident in this specimen or disease.

ENVIRONMENTAL DISEASES

Some environmental diseases are the result of lifestyle choices. e.g. poor diet and exercise can lead to cardiovascular disease, sun exposure increases melanoma risk. Other environmental diseases may be the result of environmental pollutants or work environments, e.g. asbestosis, coal miners lung.

Find the Smoking display and the *Epidemiology of Lung Cancer* poster to complete this section



SMOKING & THE EPIDEMIOLOGY OF LUNG CANCER


An impressive amount of epidemiological data incriminates cigarette smoking with various diseases, such as cardiovascular disease, emphysema and lung cancer. Statistically, about 90% of lung cancers occur in active smokers or those who stopped recently.


What is epidemiology?


How did epidemiology help identify the cause and effect relationship of smoking?


Use the information in the Smoking and Lung Cancer graph to predict the trend for female mortality rate from lung cancer in Australia between 2005 and 2025. Explain your answer. (HINT: look at trend in male mortality rate)

Select one other environmental disease to investigate by viewing relevant specimens and/or information
(circle your selection)

Asbestosis
975A.8 

Emphysema
156.9 

Coal miner's lung
1133.10 

Melanoma
2995.5 

| | |
|-----------------|--|
| Cause | |
| Symptoms | |

Find a specimen, photo or diagram of the disease you have studied above to observe and complete this section



Describe the appearance and disease changes evident in this specimen.

INTERESTING SPECIMEN 1

174.12 **Atheroma of Aorta with Teflon Graft** **Arterial plaque build up due to cardiovascular disease**

What's happened?

This specimen shows atheroma build up on the inner lining of the artery. Atheroma is also referred to as atherosclerotic plaque or simply plaque. Atheroma deposits may progressively thicken and harden the walls of the artery. This can affect blood flow and lead to angina, myocardial infarction (heart attack), stroke, clots, and aneurysms.

Arteries may become so diseased that they require replacement. A vascular graft is used to replace a section of diseased artery. This specimen displays a vascular graft made of teflon.



INTERESTING SPECIMEN 2

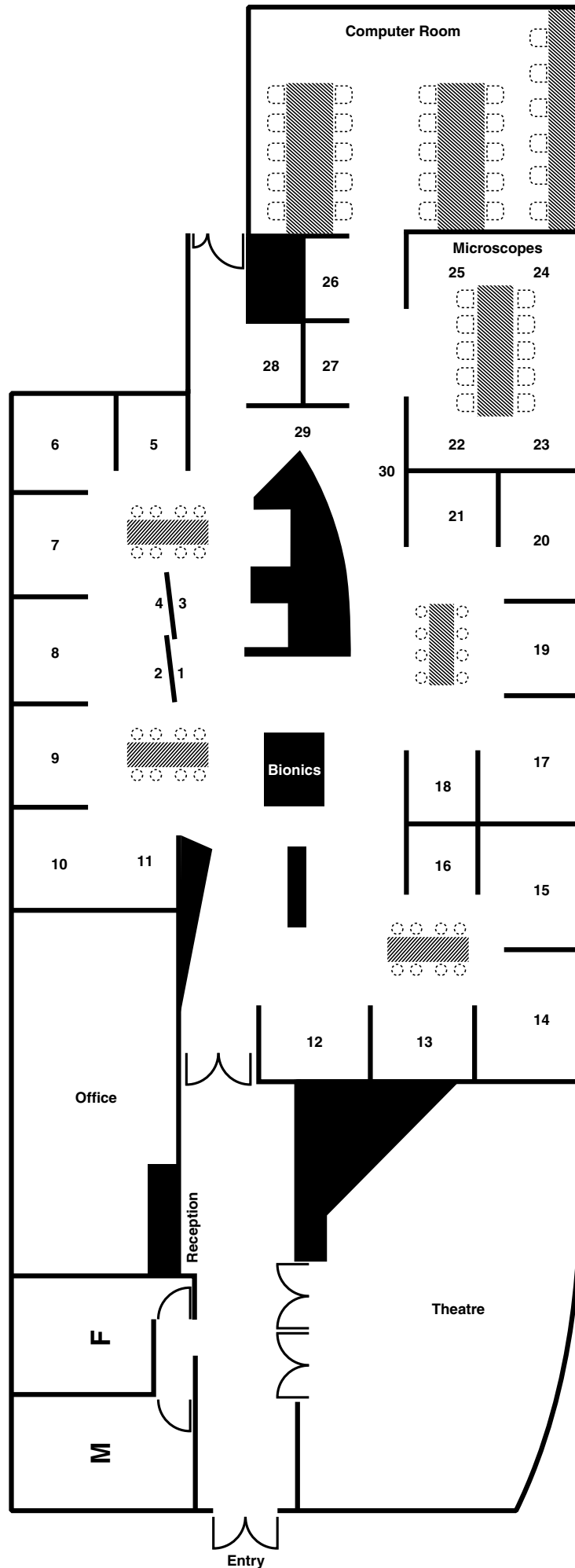
2999.14 **Hydatid Cyst in Liver** **A cyst in the liver due to Hydatid disease**

What's happened?

Hydatid disease is caused by a tapeworm which infects dogs, dingoes and foxes. Humans can develop cysts in internal organs, especially the lungs and liver, if they ingest eggs from an infected animal. The disease can become life threatening due to the risk of the cysts rupturing and may require surgery.



MUSEUM MAP



UNSW
THE UNIVERSITY OF NEW SOUTH WALES