

Microbiology Worksheet

The World of Microbes

A Vocabulary warm-up. Match the types of microbes with their definitions.

1 bacteria	a) single-celled organisms. They come in many different shapes and sizes ranging from an <i>Amoeba</i> which can change its shape to <i>Paramecium</i> . They live in a wide variety of moist habitats including fresh water, marine environments and the soil.
2 archaea	b) live in fresh or sea water where they can either be free-floating (planktonic) or attached to the bottom. Some can grow on rocks, soil or vegetation as long as there is enough moisture. A few form very close partnerships with fungi to form lichens.
3 fungi	c) the smallest of all the microbes. They are said to be so small that 500 million could fit on to the head of a pin. They are unique because they are only alive and able to multiply inside the cells of other living things.
4 protozoa	d) single celled microbes. The cell structure is simpler than that of other organisms as there is no nucleus or membrane bound organelles. Instead their control centre containing the genetic information is contained in a single loop of DNA.
5 algae	e) can be spherical, rod, spiral, lobed, rectangular or irregular in shape. Some exist as single cells, others form filaments or clusters. Until the 1970s this group of microbes was classified as bacteria.
6 viruses	f) can be one-cell or very complex multicellular organisms. A group called the decomposers grow in the soil or on dead plant matter where they play an important role in the cycling of carbon and other elements.

B The Dengue Virus

A Matching up:

- | | |
|------------|----------------------|
| 1 find | a a cure |
| 2 engulf | b a virus |
| 3 prevent | c an infection |
| 4 get | d sick |
| 5 beat out | e a disease organism |
| 6 kill out | f a pathogen |
| 7 infect | g humans |
| 8 bind to | h a host cell |

1 The dengue virus infects about _____ people each year.

A 100 million B 10 million C 110 million

2 There is currently _____ vaccine available to prevent this infection.

A only one B no C a

3 The common name for this disease is _____ fever.

A broke-bone B brake-bone C broken-bones

4 The body _____ rises to kill the pathogens.

A temperature B heat C fever

5 Lipid bilayer coating the virus' genome is similar to a _____

A bundle B bubble C bindle

6 On the outer _____ of the virus are proteins which are binding to host blood cells

A part B surface C layer

7 The virus gets engulfed into the phagocytic _____

A vehicle B vesiculum C vesicle

8 Mosquitos spreading the dengue virus appeared in Florida in _____

A 2008 B 2009 C 2010

What are some precautions against the dengue virus?

Turbidimetry

One of the simplest ways to ____ (1) the density of a bacterial culture is to use a spectrophotometer to quantify the ____ (2) of turbidity, or cloudiness, in the culture. Bacterial cells are within a size range that causes them ____ (3) slightly scatter light. The denser the culture, ____ (4) more light is scattered, and the less light reaches the phototube of the spectrophotometer. In fact, turbidity is more closely related to cell biomass (cell dry weight) ____ (5) to the number of cells present. In dilute samples, absorbance is directly proportional to biomass. In dense cultures, light is likely to ____ (6) deflected from more than one cell, ____ (7) some light will be redirected back to the photocell. Because factors ____ (8) as cell size, cell density, and instrument characteristics influence the relationship between cell density and absorbance, a standard curve relating cell concentrations to absorbance is usually used ____ (9) converting absorbance data to more useful quantities. Turbidimetry is generally done at wavelengths around 630 nm to minimize absorbance ____ (10) the medium because most bacterial growth media are brown or brownish-yellow.

- | | | | |
|----------------|-------------|-----------|-------------|
| 1 A count | B determine | C deliver | D outnumber |
| 2 A statistics | B amount | C number | D degree |
| 3 A to | B in | C for | D at |
| 4 A some | B a | C the | D and |
| 5 A as | B than | C even | D then |
| 6 A run | B turn | C have | D be |
| 7 A so | B while | C because | D unless |
| 8 A so | B than | C such | D some |
| 9 A as soon as | B when | C after | D although |
| 10 A with | B by | C from | D for |

Grammar Point

Relative clauses

92.3 Complete the sentences. Choose from the box and make a relative clause.

invented the telephone	makes furniture
runs away from home	gives you the meaning of words
stole my wallet	can support life
were hanging on the wall	cannot be explained

- Helen works for a company that makes furniture.
- The book is about a girl _____.
- What happened to the pictures _____?
- A mystery is something _____.
- The police have arrested the man _____.
- A dictionary is a book _____.
- Alexander Bell was the man _____.
- It seems that Earth is the only planet _____.

93.1 In some of these sentences you need **who** or **that**. Correct the sentences where necessary.

- The woman lives next door is a doctor. The woman who lives next door
- Have you found the keys you lost? OK
- The people we met last night were very nice. _____
- The people work in the office are very nice. _____
- The people I work with are very nice. _____
- What have you done with the money I gave you? _____
- What happened to the money was on the table? _____
- What's the worst film you've ever seen? _____
- What's the best thing it has ever happened to you? _____

94.3 Complete each sentence using **who/whom/whose/where**.

- What's the name of the man whose car you borrowed?
- A cemetery is a place _____ people are buried.
- A pacifist is a person _____ believes that all wars are wrong.
- An orphan is a child _____ parents are dead.
- What was the name of the person to _____ you spoke on the phone?
- The place _____ we spent our holidays was really beautiful.
- This school is only for children _____ first language is not English.
- The woman with _____ he fell in love left him after a month.