OUTBREAK INVESTIGATOR WORKSHEETS

AN INQUIRY ACTIVITY: BECOME AN OUTBREAK INVESTIGATOR

This worksheet booklet includes:
- Vocabulary definitions and health facts worksheet
- Math notes worksheet
- Task 1 worksheet
- Task 2 worksheet
- Task 3 worksheet
- Task 4 worksheet
- Task 5 worksheet
- Task 6 worksheet
- Reports writing worksheet for Tasks 3, 4, 5 and 6

Write the vocabulary definitions in the space provided.

Here are health facts that are important to know for the investigation. Study them for the final activity quiz.

STUDENT NAME		
TASK	**VOCABULARY TERM**	**DEFINITION**
TASK 1	Disease Outbreak **SOURCE** Boss Chelsea	*Definition* *Health Facts* Health care providers (for example, doctors) and school staff have to report any cases of disease. That's why this investigation is happening. There have been reported cases of measles.
TASK 2	Measles **SOURCE** Research Scientist Jessica	*Definition* *Health Facts* It is only spread by humans. While most people fully recover within 2-3 weeks, some people get very sick. There is no cure for measles. What makes it so dangerous is that it's highly contagious, meaning it spreads really easily. The virus can survive in small droplets in the air for several hours. That means that if someone with measles sneezes and you walk into the room an hour later, you can get infected with the virus. That is why it's so important that public health knows about every case of measles right away so that they can take action to prevent it from spreading.
TASK 3	Communicable Disease **SOURCE** Grade 6 Teacher Kathy	*Definition* *Health Facts* Measles is a communicable disease. In Canada, before the measles vaccine was available in the 1960s, many people got sick. For example: ▪ About 300,000 - 400,000 people caught measles every year ▪ Lots of people died from measles (for example, 900 people died of measles in 1926) ▪ Some measles survivors had lifelong health problems like permanent brain damage or deafness. Thanks to vaccines, measles was completely eliminated (eliminated means gone) in Canada by 1998. But measles still exists in other countries and travellers can catch it and bring it back to Canada. If people here aren't vaccinated, measles can spread quickly and outbreaks can happen.

Write the vocabulary definitions in the space provided.

Here are health facts that are important to know for the investigation. Study them for the final activity quiz.

STUDENT NAME		
TASK	**VOCABULARY TERM**	**DEFINITION & HEALTH FACTS**
TASK 4	Vaccine **SOURCE** School Nurse Ms Haines	*Definition* *Health Facts* Vaccines help the body protect itself by telling it what the disease looks like so it can prepare ahead of time. Then, if the body gets the disease in the future, it knows how to fight it off before it makes you sick. There is a vaccine that protects against measles.
TASK 5	Unvaccinated **SOURCE** School Nurse Ms Haines	*Definition* *Health Facts* A person needs to get vaccinated twice for the measles vaccine to work. Unvaccinated students are those that have not been received any measles vaccine. Students that have only had one dose of the measles vaccine are also at risk of getting measles. These students will only need the second dose of the measles vaccine be fully protected against the disease.
TASK 6	Herd Immunity **SOURCE** School Nurse Ms Haines	*Definition* *Health Facts* Not everyone can get vaccinated. Sometimes people are too young Not everyone can get vaccinated. For example, babies less than two months old are too young to get vaccines and some people can't get vaccines because of certain medical conditions. To protect those people, we need herd immunity. Herd immunity happens when there are enough people vaccinated, but it's a specific percentage of people. This percentage changes depending on the disease and how contagious it is. Measles is one of the most contagious diseases, so the percentage is really high.

MATH NOTES   Use this space to write any information that might help you remember how to do math calculations needed to complete your tasks.

PERCENTAGE EXAMPLE - What is 15 out of 25 as a percentage?

Step 1 - Divide 15 by 25. 15 ÷ 25 = 0.6   Step 2 - Multiply by 100. 0.6 x 100 = 60 (see math steps below)

$15 \div 25$

$$
\begin{array}{r}
00.60 \\
25 \overline{)15.00} \\
\underline{15\ 0} \downarrow \\
00 \\
\underline{00} \\
0
\end{array}
$$

0.6 x 100 = 60%   (Mental Math)

$$
\begin{array}{r}
100 \\
\times\ 0.6 \\
\hline
60.0
\end{array}
$$

The answer is 60%

STUDENT NAME	TASK 1 — NAME THIS INVESTIGATION PROJECT

Use this space to write possible project names. It's OK to be messy, you're brainstorming. Try to come up with a catchy name that sounds original. You want to impress your boss and keep your job, so try your best.

You might want to try alliteration - using words that start with the same letter, for example, "Searching for Sick People" or "Measuring Measles". Or try adding a strong word to your title such as "Plan" or "Strategy". Have fun!

This is a title that you're making so remember to start important wordswith a capital. Non-important words such as prepositions (words like "on", "to", "for", "with") and conjunctions (joining words like "but", "and") are in lower letters, unless they are the first word.

SOURCE Who gave you this information and what is their job? For Task 1 you are the source.

TASK 1 REPORT

Copy the words written here onto the lines below and fill in the blank: **The name of the investigation project is** _____

Remember to use capitals for the name. Use a pencil so you can make changes easily. Print neatly. Check spelling & punctuation.

_____

_____

When finished, have a partner check your "spelling and punctuation". Fix any mistakes. Make sure your name is on this.

STUDENT NAME	TASK 2	IDENTIFY THE SCHOOL WHERE THE MEASLES OUTBREAK HAS HAPPENED

DATA

The symptoms of measles are fever, runny nose, cough, red eyes, and a red rash. The only school that has these symptoms is _____

Use this space to write down any notes that might help you identify the school.

The school is a specific place so you need to use capitals in the name.

SOURCE   Who gave you this information and what is their job?

TASK 2 REPORT

Copy the words written here onto the lines below and fill in the blank: **A measles outbreak has occurred in a school. The school where the measles outbreak has occurred has been identified as _____.**
Remember capitals for the school. Use a pencil so you can make changes easily. Print neatly. Check your spelling and punctuation.

_____

_____

_____

When finished, have a partner check your "spelling and punctuation". Fix any mistakes. Make sure your name is on this.

STUDENT NAME	TASK 3 FIND THE PERCENTAGE OF STUDENTS WITH MEASLES

DATA   Use this space to write down numbers you'll need to know to do the math calculations.

Number of students in the school _____

Number of students with measles _____ in what grade ____?

Number of students with measles _____ in what grade ____?

Total number of students with measles ____

SOURCE   Who gave you this information and what is their job?

MATH   All of your math work needs to be done in the section below. Show all of the steps you have used to work out the percentage of students with measles.

Example

```
15 ÷ 25

        00.60
   25 ) 15.00
        15 0↓
          0 0
          0 0
            0

  0.6 × 100 = 60%   (Mental Math)

  1 0 0
× 0.6
  6 0.0

The answer is 60%
```

You will do the reports for Tasks 3, 4, 5, and 6 altogether at the end. No writing needed now.

STUDENT NAME	TASK 4	FIND THE PERCENTAGE OF PEOPLE IN THE CITY WITH MEASLES

DATA   Use this space to write down numbers you'll need to know to do the math calculations.

 Number of people in the city (total population) _____

Number of people in the city with measles _____

Total number of students with measles in Central Elementary _____

SOURCE   Who gave you this information and what is their job?

MATH   Use graph paper below to show all the steps for working out the percentage of people in the city with measles.

Example

15 ÷ 25

```
         00.60
    25 ) 15.00
         15 0↓
          0 0
          0 0
            0
```

0.6 × 100 = 60%   (Mental Math)

```
  100
×  0.6
  60.0
```

The answer is 60%

You will do the reports for Tasks 3, 4, 5, and 6 altogether at the end. No writing needed now.

STUDENT NAME	TASK 5	FIND THE PERCENTAGE OF STUDENTS THAT ARE UNVACCINATED FOR MEASLES

DATA Use this space to write down numbers you'll need to know to do the math calculations.

Total number of students _____ minus the number of students that are vaccinated _____ gives the number of students that are unvaccinated _____

Take the number of unvaccinated students and divide it by the total number of students _____

Then multiply this number by 100 to get the percentage _____%

SOURCE Who gave you this information and what is their job?

MATH Use graph paper below to show all the steps for working out the percentage of students that are unvaccinated for measles.

Example

```
15 ÷ 25

        00.60
   25 )15.00
       15 0↓
          0 0
          0 0
            0

  0.6 × 100 = 60%    (Mental Math)

  1 0 0
  × 0.6
  6 0.0

The answer is 60%
```

You will do the reports for Tasks 3, 4, 5, and 6 altogether at the end. No writing needed now.

DATA   **DATA**   Use this space to write down numbers you'll need to know to do the math calculations.

Take the percentage required for students to be safe (herd Immunity) then convert it into a decimal _____

Multiply the answer above by the total number of students _____

SOURCE   **SOURCE**   Who gave you this information and what is their job?

MATH   **MATH**   Use graph paper below to show all the steps for working out the number of students that need to be vaccinated for the school to be SAFE.

Example

$15 \div 25$

$$25 \overline{)15.00}$$ quotient 00.60
$15\ 0\downarrow$
00
00
0

$0.6 \times 100 = 60\%$ (Mental Math)

$$\begin{array}{r} 100 \\ \times\ 0.6 \\ \hline 60.0 \end{array}$$

The answer is 60%

You will do the reports for Tasks 3, 4, 5, and 6 altogether at the end. No writing needed now.

REPORTS FOR TASKS 3, 4, 5, AND 6

STUDENT NAME

As a new disease outbreak health investigator, you are learning how to write reports. A helpful co-worker has given you the following information to copy accurately and you will fill in the correct math.

Use a pencil so you can make changes easily. Print neatly. Check your spelling and punctuation.

TASK 3:

Out of _____ students at Central Elementary, the number of students infected with measles is _____.   This is _____% of the total student population.

_____

_____

_____

TASK 4:

There are ___ cases of measles outside of Central Elementary in the city. The population of the city is ____. The number of students infected with measles is _____. This means that _____ % of the city is infected with measles.

_____

_____

_____

TASK 5:

The number of students that are not vaccinated for measles is _____. This is _____% of the students.

_____

_____

TASK 6:

The vaccination required for herd immunity against measles is ___%. This means that the number of students that need to be vaccinated to be safe against measles is _____.

_____

_____

_____

When finished, have a partner check your "spelling and punctuation". Fix any mistakes. Make sure your name is on this.

Student Report Sheet for Tasks 3, 4, 5 and 6-2