

# AN INQUIRY ACTIVITY: BECOME AN OUTBREAK INVESTIGATOR

## Teacher Resource & Support Materials

### RESOURCE INCLUDES:

- Descriptions of tasks and icons
- Activity plan
- Activity Booklet of worksheets for vocabulary, tasks, math and reports
- Teacher answer sheets and marking suggestions
- Creative presentation outline, planning sheet & marking rubric

### HOW THIS ACTIVITY WORKS

This cross-curricular inquiry activity is designed around students taking on a hypothetical role as a public health disease outbreak investigator. The activity is written as a story about a measles outbreak in a local elementary school.

Students complete six tasks as part of their investigation. Each task has a number of steps that are identified with icons throughout the story. Students apply language arts skills as they interview people, build vocabulary and write reports on their findings. Students also use computational skills as they record data and solve specific math problems.

The activity finishes with the outbreak investigator communicating their understanding through a creative presentation.



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# TASKS & ICONS

## Tasks

This activity is written as a story where students take on the role of a public health outbreak investigator. The story starts in a public health building where the investigator's 'boss' gives directions on what needs to be done to find out where a measles outbreak has occurred in a local town. The next step is to gather data about measles from a 'research scientist'. Then the investigator has to gather necessary information from people (sources) in order to determine who has been infected, how far the measles outbreak has spread, and how to keep everyone SAFE.








As students proceed through the story they will complete six tasks, including:

TASK 1	Name your investigation project
TASK 2	Identify the school where the measles outbreak has happened
TASK 3	Find the percentage of students with measles
TASK 4	Find the percentage of people with measles in the city
TASK 5	Find the percentage of students that are unvaccinated for measles
TASK 6	Find the number of students that need to be vaccinated for the school to be SAFE

\*There are two additional tasks mentioned in the story as a narrative device. Students do not complete these tasks, and there are no worksheets for them.

## Icons

Each of the six tasks described above requires students to carry out a number of steps identified by icons. These icons are identified throughout the story as shown in the chart below.

Icons Used in the Story	Icons in the Story Showing Steps Required For Each Task
<b>VOCAB</b> 	Write the definition of a health term.
<b>HEALTH FACTS</b> 	Write health facts to gain knowledge for the investigation and quiz.
<b>DATA</b> 	Write important data that will help complete the task.
<b>SOURCE</b> 	Write the name and job title of each person who is a 'source' of information.
<b>MATH NOTES</b> 	Optional: write notes to help carry out math calculations.
<b>MATH</b> 	Do math problems given and show math work.
<b>REPORT</b> 	Write a report on findings.



## VOCABULARY AND HEALTH FACTS



Throughout the story there are a number of vocabulary definitions and health facts that are important for students to understand. The health facts make a helpful study-guide for preparing for the quiz at the end of the activity. If students score 80% or higher they can earn vaccines for a child in a developing country through UNICEF. Students can retake the quiz until they are successful.

There are three options for worksheets depending on how much writing is expected:

- Students write all of the information (in Outbreak Investigator Worksheets-1).
- Students write definitions only (in Outbreak Investigator Worksheets-2 for supported learning).
- All info is provided as a study guide (in the Teacher Answer Guides/Quiz).



## DATA

For each of the six tasks, important information is identified with a 'data' icon. The data icon is found throughout the story. Students will be asked to record this information on the Task Worksheet in the corresponding space. This key 'data' will help students work through each task.

There are two 'data' options for Task Worksheets:

- Students fill in all data on Task worksheets (in Outbreak Investigator Worksheets).
- Students are provided with some data (in Outbreak Investigator Worksheets - supported learning).



## SOURCES

In their role as a public health outbreak investigator students will gain information from a number of characters in the story. Each character is considered a 'source' of information. Students will write down the name and job title of their source in the place provided on the Task Worksheet.

Here are source characters' names and job titles:

- Chelsea - Boss
- Jessica - Research Scientist
- Ian - Principal
- Denise - Math Teacher
- Kathy - Grade 6 Teacher
- Craig - Grade 3 Teacher
- Ms Haines - School Nurse



## MATH NOTES (OPTIONAL)

Students may find it useful to make notes as they are working through the math lessons.

There are two options for Math Notes: Outbreak Investigator Worksheets-1 for students to write all notes. Outbreak Investigator Worksheets-2 for supported learning with a long division example is provided.

### MATH LESSONS PROVIDE THE FOLLOWING MATH NOTES

Percent comes from the phrase 'per cent'. Cent means 100. So when someone says 10 percent, it really means 10 out of 100. The symbol we use is %, such as 1%, which is read as 1 percent.

If you wanted to know what 15 out of 25 is in percentages, all you have to do is follow two steps:

Step 1 - Divide 15 by 25.  $15 \div 25 = 0.6$

Step 2 - Multiply by 100.  $0.6 \times 100 = 60$

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

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

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

The answer is 60%

To convert a percentage into a decimal, move the decimal to the left twice.

If you have 75%, adding two decimals to the right of 75 would be 0.75. With whole numbers, the decimal is just invisible because 75 is actually 75.0 after all. So if you move it to the left, it's 0.75. That's all you need to know.

15.0% would be 0.15

55% would be 0.55

10% would be 0.10

100.0% would be 1.00

To find the percentage of a number, take the percentage as a decimal and multiply it by the number.

MULTIPLY 0.80 (OR 80% IN DECIMALS) BY 60, OR:

$$0.80 \times 60 = 48$$



## MATH

This activity covers the teaching of percentages: however, teachers may want to review division and multiplication as well. Task Worksheets 3-6 include a grid for showing all math work.

## TASK WORKSHEETS

There are six tasks and each has a Task Worksheet in the Outbreak Investigator Worksheets. The purpose of the Task Worksheet is for students to record sources, and data, as well as work through math problems. Icons make it easy to find the necessary information.

Teachers need to decide whether students hand in Activity Booklet as they complete Task Worksheets or altogether at the end of the activity.

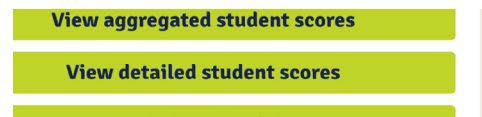
## ASSESSMENT

There is a Teacher Activity Booklet with answer guides and marking suggestions. It is left to the discretion of the teacher to select their own preferred marking approach.

There is also an online quiz at the end of the activity. If students score 80% or higher they can earn vaccines for a child in a developing country through UNICEF. Students are able to retake the quiz until they are successful. Teachers may want to look at each student's quiz score. To do so, go to "My Teams" at the top menu and you will see your team/class.



Click on the team/class then scroll down a little and you will see a box on the right with several menu items. Click on "View detailed student scores."



You are then able to see all the quiz scores by all the students, including all repeat attempts. This means you can also see if any students have tried to raise their scores over several tries.

STUDENT	TOPIC	QUIZ	SCORE	RESULT	DATE
BL	Critical Thinking & Evaluating Information (Socials/Science/Health)	01 - The Power of the Story	100	PASS	Oct 25
BL	Critical Thinking & Evaluating Information (Socials/Science/Health)	02 - How to Collect Trustworthy Information: The CRAAP Test	86	PASS	Oct 25

Here are the functions of all the dropdown menus. Using these, you can filter the results to find out the exact information you are looking for. From the left to the right, you can filter by:

- Specific students (or all)
- Topic area (or all)
- Specific quiz (or all)
- Score (you can use < and > symbols to see who has scored more than a certain score. This includes all attempts, so a student may show up with scores that are less than 50 and greater than 50)
- Result (this is a pass/fail, with pass being 80% or above)
- Date (if you'd like to see an attempt at a specific date)

Once you've filtered your desired results, you can copy and paste it into your preferred spreadsheet program as well.

# CREATIVE PRESENTATION

The last few pages of this resource include handouts for the creative presentation. As a cross-curricular activity, the creative presentation balances the language arts and math work.

## Creative presentation outline

Students are asked to choose one or more ways to express themselves creatively about anything they have learned in their role as a public health investigator. For example, they can:

- Write a poem.
- Draw or paint a picture.
- Create a sculpture or some 3-D form such as lego.
- Create a digital art piece, for example images that have been manipulated digitally. Also, make a video, for example, of a disease outbreak, or a movie trailer for saving the world from a disease outbreak.
- Create a drama or dance performance.
- Develop something musically such as a song or instrumental piece and perform it in person, or present as an audio or video recording. For example, make a music video changing the words to a song they like.

## Creative presentation planning sheet

There is a planning sheet provided for students to map out their intended creative presentation. They can work individually, or in pairs/groups.

## Creative presentation marking rubric

There is a marking rubric with evaluation criteria for:

- Presentation planning
- Presentation development
- Class presentation

# THE STORY

This story is written so that students experience what it is like to become a measles investigator. The story is broken down into the following sections:

## PART 1 – INTRO, TASK 1, ICONS, VOCAB TERM, PERCENTAGES

- Part 1 – A measles emergency?
- Part 1 – Worksheets
- Part 1 – The first task
- Part 1 – Sources and reports
- Part 1 – Look for icons
- Part 1 – The first vocabulary term 'Disease Outbreaks'
- Part 1 – The creative presentation
- Part 1 – Why percentages?
- Part 1 – What is a percentage? Continued.
- Part 1 – What is a percentage? Further continued.
- Part 1 – How do you calculate percentages?
- Part 1 – How do you calculate percentages? Choose an Answer 15% or 40%
- Part 1 – The second task

## PART 2 – TASK 2 & PERCENTAGES

- Part 2 – The Lab
- Part 2 – The Lab: The definition of measles
- Part 2 – The Lab: Measles symptoms
- Part 2 – The Lab: Identifying the school
- Part 2 – Calculating a number from a percentage
- Part 2 – Calculating a number from a percentage – 0.75
- Part 2 – Next up, Central Elementary

## PART 3 – TASKS 3-6 Choose from various people to interview to complete Tasks 3-6, in any order.

- Part 3 – Central Elementary
  - The principal, Ian
  - Grade 6 teacher, Kathy
  - Grade 3 teacher, Craig
  - The school nurse, Ms Haines
  - The math teacher, Denise
  - Call Jessica back at the Lab
  - Call Chelsea back at the office

## PART 4 – WRITING REPORTS FOR TASK 3-6 AND THE QUIZ

## PART 5 – EPILOGUE



# ACTIVITY PLAN

The next few pages outline a plan for teaching this activity. Teachers can use/adapt as needed.

## Pre-activity

It is suggested that teachers prepare for the activity by doing the following:

- Read through this resource and preview parts of the activity story to see how it is organized.
- Print desired number of Outbreak Investigator Worksheets from two options (explained below under 'meeting diverse student needs').
- Consider whether teaching multiplication and division will be required.

## Meeting diverse students' needs

**Printing Worksheets** - To complete this activity students will need to be given worksheets for tasks, math notes, and vocabulary and health facts. **The worksheets can be printed and stapled all together as a booklet (see page numbers shown in the Table of Contents).** Or teachers may choose other options for printing and handing out.

**Two options for Outbreak Investigator Worksheets** - To support diverse learning needs there are two options of worksheets depending on how much writing is expected. Teachers can select based on individual student needs:

- Outbreak Investigator Worksheets-1 is for students to write all of the information.
- Outbreak Investigator Worksheets-2 is for supported learning with some information provided.

**Fast-paced learners** - For students who work quickly, they can spend the extra time developing a more in-depth creative presentation.

**Support for learning vocabulary and health facts** - In the Teacher Answer Guides/Quiz there is a vocabulary definition matching quiz that can be done when students are finished learning this information. There is an accompanying answer key and self/peer marking is possible. See also a vocabulary and health facts study guide with all of the information to support review for the final quiz.

**Choosing level of difficulty** - To meet diverse learning needs there are varying levels of difficulty for going through this activity.

**Easiest.** The easiest approach is to always start with math teacher Denise who will explain exactly what to do for each task. Then do Tasks 1-6 in order.

**Quite Easy.** Another easy approach which is more engaging is to involve students in making choices. Tasks 3-6 can be done in any order, and there are also always choices of people to interview. To keep this quite easy, stay on a single task until it is completed. For example, if the choice is to complete Task 5, students should only gather information from people on Task 5 until they are finished that task.

**Quite challenging.** This activity becomes harder if the focus is on more than one task for any given session.

**Most Challenging.** The most challenging approach is to make the interview choices open-ended. This would require students to piece together information as they interview people. For some students this level of inquiry is rewarding because they have to make all of the connections for themselves.

## Activity schedule

Scheduling this activity will depend on a variety of factors. One possibility is to spread the activity over a 2-week time-frame. This allows students enough 'creating' time to develop a quality presentation. An example for scheduling is provided below. In this example, the activity is done over a number of 1-hour sessions, with the last 10-15 minutes of each session spent on the creative presentation.

**NOTE - There are various levels of difficulty, and only the easiest is shown here.**

MEASLES INVESTIGATOR ACTIVITY & CREATIVE PRESENTATION				DATES (suggest 2-3 weeks)
MON	TUES	WED	THUR	FRI
	<b>Session 1</b> Intro all - activity, creative presentation, vocabulary list. Do Task 1.	<b>Session 2</b> Complete first set of math lessons, do Task 2 and vocab term, plan creative presentation.		<b>Session 3</b> start with math teacher, Denise, and follow instructions for Task 3. Finish plan/work on creative presentation.
	<b>Session 4</b> start with math teacher, Denise, and follow instructions for Task 4 and 5. Work on creative presentation.	<b>Session 5</b> start with math teacher, Denise, and follow instructions for Task 6. Take final quiz. Work on creative presentation.		<b>Session 6</b> Write reports for Tasks 3-6, finish creative presentation.
	Presentations.	Presentations if more time is needed.		

## Teaching approach

Part 1 and Part 2 of the story include an introduction to the icons, the first two tasks (Task 1 and Task 2) and learning how to calculate percentages. It would be a good idea to lead the class as a group through Parts 1 and 2 so that students are guided in understanding the steps needed to complete Task Worksheets. There is also the worksheet for vocabulary and health facts, so there's a lot going on.

By the time students get to Tasks 3, 4, 5, and 6, they will be familiar with the different icons. These can be done in any order. Teachers may choose to work through these tasks as a class, or have students work in small groups, in pairs, or individually on computers/phones, either in the classroom or a computer lab. The aim is to meet diverse learning needs.

*NOTE - there are two tasks (Task 7 and 8) used for teaching students how to do a simple percentage calculation. It is made clear in the activity that students DO NOT complete Tasks 7 and 8.*

## Reading aloud to dramatize the characters

The story has a number of characters so it would be helpful for this to be read aloud to dramatize the different personalities and roles. Either the teacher can do this, or even better, have students play the characters if possible. Multiple students can read a character to encourage participation and avoid fatigue. It can work well if a student reads a section and then calls "popcorn" or some other phrase to signal the next student to read that character. For Parts 1 and 2 of the story the reading can be done as a class all together.

Part 3 involves Tasks 3-6. Reading aloud will depend on many factors that can only be determined by the individual teacher.

## SESSION 1 (approx. 1 hour)

- **Introduce disease outbreaks and the activity**
- **Explain the creative presentation**
- **Complete Task 1 - Name the investigation project**

### **Introduce disease outbreaks and the activity**

Begin by getting students to think about the term 'disease outbreak'. What comes to mind for them? They may mention 'zombie' or outbreak movies/TV shows. Perhaps they have real examples. As a class, try a Google news search on the topic of 'measles outbreak' within the last year. You might find that it has been a global concern. Next, explain to the class that they are going to do an online activity where they will take on the role of a public health outbreak investigator. To be more specific, a measles investigator. This activity has been written as a story, and students play the starring role!

Explain that you will start the activity as a class all together so everyone understands the many actions needed to carry out the investigation. After that students can work online, either on their own or in pairs/groups. Specify whether they will be using computers, phones, etc. Then, after finishing the activity, they will each show their learning through a creative arts presentation, which can be anything arts related. For example, poetry, dance, music, video, art, animation, etc. This presentation is completely open to interpretation and students can have fun with it.

Introduce the activity by getting students to imagine the kind of skills involved in being a measles investigator. Students can discuss in small groups to come up with some ideas, and share with the class. Likely there will be some very interesting answers.

Then explain that this activity is written as a story and they have the lead role as the measles investigator. In the story they talk with a number of characters who give them information to help them with their investigation. Of course, as an investigator they have to keep really good records on a number of details so that they can accurately report their findings.

Teachers can...

- Refer students to Task 1 Worksheet (in printed booklet of worksheets). Use Task 1 teacher answer key with marking suggestions.
- Students fill in Vocabulary and Health Facts worksheet (in printed booklet of worksheets). Task 1 vocabulary term is 'Disease Outbreak' from Boss Chelsea.
- Read the following parts of the story aloud.  
There are two characters: 1. Chelsea the boss 2. The investigator.
  - Part 1 – A measles emergency?
  - Part 1 – Worksheets.
  - Part 1 – The first task.
  - Part 1 – Sources and reports.
  - Part 1 – Look for icons.
  - Part 1 – The first vocabulary term 'Disease Outbreaks'.
  - Part 1 – The creative presentation - students can think about what they might like to do.
- Students fill in Task 1 worksheet to create a unique, catchy name for the investigation. Tell when to hand in Task 1 worksheet (now or at the end when all worksheets are completed).

## **SESSION 2** (approx. 1 hour)

- **Do first math lessons**
- **Complete Task 2 - Name the school where the measles outbreak happened**
- **Plan creative presentation**

Teachers can...

- Refer students to Task 2 Worksheet (in printed booklet of worksheets). Use Task 2 teacher answer key with marking suggestions.
- Students fill in Vocabulary and Health Facts worksheet (in printed booklet of worksheets). Task 2 vocabulary term is 'Measles' from Jessica the Research Scientist.
- Read the following parts of the story aloud.  
There are three characters: 1. Chelsea the boss 2. The investigator 3. Jessica the research scientist
  - Part 1 – Why percentages?
  - Part 1 – What is a percentage? Continued.
  - Part 1 – What is a percentage? Further continued.
  - Part 1 – How do you calculate percentages?
  - Part 1 – How do you calculate percentages? Choose an Answer 15% or 40%.
  - Part 1 – The second task.
- Students complete Task 2 worksheet and identify the school where the outbreak happened. Tell when to hand in (now or at the end when all worksheets are completed).
- Hand out 'Plan for Creative Presentation' for students to start planning individually/pairs/groups.

## **SESSION 3** (approx. 1 hour)

- **Do second math lessons**
- **Complete Task 3 - find out the percentage of students with measles**
- **Work on creative presentation**

Teachers can...

- Do the second set of math lessons on percentages given by Boss Chelsea. These prepare the investigator.
- Refer to Task 3 Worksheet (in printed booklet of worksheets). Use Task 3 teacher answer key with marking suggestions. Start by talking with math teacher, Denise, about Task 3.
- Students fill in Vocabulary and Health Facts worksheet (in printed booklet of worksheets). There is a vocabulary term 'Communicable Disease' from grade 6 teacher, Kathy. It's not with any Task but it is third vocabulary term so it might be good to complete here.
- Choose whether to read the story aloud. Task 3 has a few characters: 1. Ian the principal 2. The investigator 3. Gr. 6 teacher, Kathy 4. Gr. 3 teacher, Craig. Choose in any order. Stay on Task 3 information.
- Students complete Task 3 worksheet (in printed booklet of worksheets) and find the percentage of students with measles. Tell when to hand in (now or at the end when all worksheets are completed).
- Students finish 'Plan for Creative Presentation' and hand in, and work on presentation.

## **SESSION 4 Complete Tasks 4 & 5, work on creative presentation** (approx. 1 hour)

### **Task 4 Find the percentage of people with measles in the city.**

### **Task 5 Find the percentage of students that are unvaccinated for measles.**

Teachers can...

- Refer students to Task 4 & 5 worksheets (in printed booklet of worksheets). Use Tasks 4 & 5 teacher answer keys with marking suggestions. Start by talking with math teacher, Denise, about Task 4 & 5.
- Students fill in Vocabulary and Health Facts worksheet (in printed booklet of worksheets).. Task 4 term is 'Vaccines'. Task 5 term is 'Unvaccinated'. Both from School Nurse, Ms Haines.
- Choose whether to read the story aloud. There are a few characters: 1. Ian the principal 2. The investigator 3. Jessica the Research Scientist. 4. Ms Haines the School Nurse. Choose order and stay on Task 4 until finished before moving on to Task 5.
- Students complete Task 4 worksheet and find the percentage of people in the city with measles.
- Students complete Task 5 worksheet and find the percentage of students who are unvaccinated for measles. Remind when to hand in (now or at the end when all worksheets are completed).
- Students work on Creative Presentation.

## **SESSION 5 Complete Task 6, work on creative presentation** (approx. 1 hour)

### **Task 6 Find the number of students that need to be vaccinated for the school to be SAFE.**

Teachers can...

- Refer students to Task 6 worksheet (in printed booklet of worksheets). Use Task 6 teacher answer key with marking suggestions. Start by talking with math teacher, Denise, about Task 6.
- Students fill in Vocabulary and Health Facts worksheet (in printed booklet of worksheets). Task 6 term is 'Herd Immunity' from School Nurse, Ms Haines.
- Choose whether to read the story aloud. Task 6 has two characters: 1. The investigator 2. Ms. Haines the School Nurse
- Students complete Task 6 worksheet. Remind when to hand in (now or at the end when all worksheets are completed).
- Students work on Creative Presentation.

## **SESSION 6 Write reports for Tasks 3-6, do final quiz, finish creative presentation**

Teachers can...

- Refer to Report for Tasks 3, 4, 5, and 6 worksheet (in printed booklet of worksheets). Consider using marking suggestions seen earlier.
- Choose whether to read the story aloud. There are two characters 1. Jessica the Research Scientist 2. The investigator.
- Students complete the reports (in printed booklet of worksheets). Hand in.
- Students get questioned by Boss Chelsea for the final activity quiz online. Scoring 80% or higher earns vaccines through UNICEF. Students can retake quiz until successful. Finish last activity page.
- Students do final preparations for Creative Presentation to be ready for the following week.

# OUTBREAK INVESTIGATOR WORKSHEETS

Write the vocabulary definition, source and health facts in the space provided.

STUDENT NAME		
VOCABULARY TERM	DEFINITION	HEALTH FACTS
Disease Outbreak <b>Source</b> Who said this?		
Measles <b>Source</b> Who said this?		
Communicable Disease <b>Source</b> Who said this?		
Vaccine <b>Source</b> Who said this?		
Unvaccinated <b>Source</b> Who said this?		
Herd Immunity <b>Source</b> Who said this?		

STUDENT NAME



**MATH NOTES**

Use this space to write any information that might help with math calculations.



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



**REPORT 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.

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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



**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".

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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 any information that might help you communicate with fractions, ratios and percents.



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



**MATH** Use the graph paper below to make your thinking for with these calculations visible.

**Example**

$15 \div 25$

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

$0.6 \times 100 = 60\%$  (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.

STUDENT NAME

**TASK 4** FIND THE PERCENTAGE OF PEOPLE IN THE CITY WITH MEASLES



**DATA** Use this space to write down any information that might help you communicate with fractions, ratios and percents.



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



**MATH** Use the graph paper below to make your thinking for with these calculations visible.

Example

$15 \div 25$

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

$0.6 \times 100 = 60\%$  (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.

STUDENT NAME

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



**DATA** Use this space to write down any information that might help you communicate with fractions, ratios and percents.



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



**MATH** Use the graph paper below to make your thinking for with these calculations visible.

**Example**

$15 \div 25$

$$\begin{array}{r} 0.60 \\ 25 \overline{)15.00} \\ \underline{15\ 0} \\ 00 \\ \underline{00} \\ 0 \end{array}$$

$0.6 \times 100 = 60\%$  (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.

STUDENT NAME

### TASK 6

FIND THE NUMBER OF STUDENTS THAT NEED TO BE VACCINATED FOR THE SCHOOL TO BE SAFE



**DATA** Use this space to write down any information that might help you communicate with fractions, ratios and percents.



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



**MATH** Use the graph paper below to make your thinking with these calculations visible to show the number of students that need to be vaccinated to be SAFE.

#### Example

$15 \div 25$

$$\begin{array}{r} 0.60 \\ 25 \overline{)15.00} \\ \underline{15\ 0} \phantom{0} \\ 00 \\ \underline{00} \\ 0 \end{array}$$

$0.6 \times 100 = 60\%$  (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 measles outbreak investigator you need to accurately report your findings for Tasks 3-6. Use spaces provided below. Use a pencil so you can make changes easily. Print neatly. Check your spelling and punctuation.

### TASK 3:

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### TASK 4:

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### TASK 5:

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### TASK 6:

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

# OUTBREAK INVESTIGATOR WORKSHEETS



**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	<p>Disease Outbreak</p> <p><b>SOURCE</b></p> <p>Boss Chelsea</p>	<p><i>Definition</i></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 2	<p>Measles</p> <p><b>SOURCE</b></p> <p>Research Scientist Jessica</p>	<p><i>Definition</i></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 3	<p>Communicable Disease</p> <p><b>SOURCE</b></p> <p>Grade 6 Teacher Kathy</p>	<p><i>Definition</i></p> <p><i>Health Facts</i></p> <p>Measles is a communicable disease. In Canada, before the measles vaccine was available in the 1960s, many people got sick. For example:</p> <ul style="list-style-type: none"> <li>▪ About 300,000 - 400,000 people caught measles every year</li> <li>▪ Lots of people died from measles (for example, 900 people died of measles in 1926)</li> <li>▪ Some measles survivors had lifelong health problems like permanent brain damage or deafness.</li> </ul> <p>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.</p>

**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	<p>Vaccine</p> <p><b>SOURCE</b></p> <p>School Nurse Ms Haines</p>	<p><i>Definition</i></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 5	<p>Unvaccinated</p> <p><b>SOURCE</b></p> <p>School Nurse Ms Haines</p>	<p><i>Definition</i></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 6	<p>Herd Immunity</p> <p><b>SOURCE</b></p> <p>School Nurse Ms Haines</p>	<p><i>Definition</i></p> <p><i>Health Facts</i></p> <p>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.</p>

STUDENT NAME



## 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.  $15 \div 25 = 0.6$       Step 2 - Multiply by 100.  $0.6 \times 100 = 60$  (see math steps below)

$$15 \div 25$$

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

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

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

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



**REPORT 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.

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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.

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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**

$$15 \div 25$$

$$\begin{array}{r} 0.60 \\ 25 \overline{)15.00} \\ \underline{15\ 0} \phantom{0} \\ 00 \\ \underline{00} \\ 00 \\ \underline{00} \\ 0 \end{array}$$

$$0.6 \times 100 = 60\% \quad (\text{Mental Math})$$

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

The answer is 60%

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

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**

$15 \div 25$

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

$0.6 \times 100 = 60\%$  (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.

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** **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**

$15 \div 25$

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

$0.6 \times 100 = 60\%$  (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.



STUDENT NAME

**TASK 6** FIND THE NUMBER OF STUDENTS THAT NEED TO BE VACCINATED FOR THE SCHOOL TO BE SAFE



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



**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**

$15 \div 25$

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

$0.6 \times 100 = 60\%$  (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.

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### 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.

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### TASK 5:

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

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### 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 \_\_\_\_\_.

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

# TEACHER

## ANSWER GUIDES/QUIZ

Throughout the story there are a number of vocabulary definitions and health facts. These are important to understand to carry out the outbreak investigation. They will also help answer the activity quiz correctly.

Here is the information.

TASK	VOCABULARY TERM	DEFINITION
TASK 1	<p>Disease Outbreak</p> <p><b>SOURCE</b></p> <p>Boss Chelsea</p>	<p><i>Definition</i></p> <p><b><i>A disease outbreak happens when there are more cases of disease than usual in a time or place.</i></b></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 2	<p>Measles</p> <p><b>SOURCE</b></p> <p>Research Scientist Jessica</p>	<p><i>Definition</i></p> <p><b><i>Measles is a dangerous disease that is caused by a virus.</i></b></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 3	<p>Communicable Disease</p> <p><b>SOURCE</b></p> <p>Grade 6 Teacher Kathy</p>	<p><i>Definition</i></p> <p><b><i>Communicable (pronounced CO-MEW-NI-KA-BULL) means diseases that are spread through close contact with an infected human or animal.</i></b></p> <p><i>Health Facts</i></p> <p>Measles is a communicable disease. In Canada, before the measles vaccine was available in the 1960s, many people got sick. For example:</p> <ul style="list-style-type: none"> <li>▪ About 300,000 - 400,000 people caught measles every year</li> <li>▪ Lots of people died from measles (for example, 900 people died of measles in 1926)</li> <li>▪ Some measles survivors had lifelong health problems like permanent brain damage or deafness.</li> </ul> <p>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.</p>

Throughout the story there are a number of vocabulary definitions and health facts that are important to understand in order to carry out the outbreak investigation and answer quiz questions.

Here is the information.

TASK	VOCABULARY TERM	DEFINITION & HEALTH FACTS
TASK 4	<p>Vaccine</p> <p><b>SOURCE</b></p> <p>School Nurse Ms Haines</p>	<p><i>Definition</i></p> <p><b><i>Vaccines are medicines you can take to prevent some diseases before they happen.</i></b></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 5	<p>Unvaccinated</p> <p><b>SOURCE</b></p> <p>School Nurse Ms Haines</p>	<p><i>Definition</i></p> <p><b><i>A person who has not received their vaccines is considered to be unvaccinated.</i></b></p> <p><i>Health Facts</i></p> <p>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.</p>
TASK 6	<p>Herd Immunity</p> <p><b>SOURCE</b></p> <p>School Nurse Ms Haines</p>	<p><i>Definition</i></p> <p><b><i>The type of protection created when most people are vaccinated is called 'herd immunity' (also called community immunity).</i></b></p> <p><i>Health Facts</i></p> <p>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.</p>

**MATCH VOCABULARY TERM WITH DEFINITION****NAME**

1. ___ Disease Outbreak	A. Diseases that are spread through close contact with an infected human or animal.
2 ___ Measles	B. The type of protection created when most people are vaccinated.
3. ___ Communicable Disease	C. This disease is caused by a virus and it is also the reason for this investigation.
4. ___ Vaccine	D. Happens when there are more cases of disease than usual in a time or place.
5. ___ Unvaccinated	E. Medicines you can take to prevent some diseases before they happen.
6. ___ Herd Immunity	F. Someone is not vaccinated (did not receive two doses of the measles vaccine) is considered to be...

**MATCH VOCABULARY TERM AND DEFINITION****NAME**

1. ___ Disease Outbreak	A. Diseases that are spread through close contact with an infected human or animal.
2 ___ Measles	B. The type of protection created when most people are vaccinated.
3. ___ Communicable Disease	C. This disease is caused by a virus and it is also the reason for this investigation.
4. ___ Vaccine	D. Happens when there are more cases of disease than usual in a time or place.
5. ___ Unvaccinated	E. Medicines you can take to prevent some diseases before they happen.
6. ___ Herd Immunity	F. Someone is not vaccinated (did not receive two doses of the measles vaccine) is considered to be...

**MATCH VOCABULARY TERM AND DEFINITION****NAME**

1. ___ Disease Outbreak	A. Diseases that are spread through close contact with an infected human or animal.
2 ___ Measles	B. The type of protection created when most people are vaccinated.
3. ___ Communicable Disease	C. This disease is caused by a virus and it is also the reason for this investigation.
4. ___ Vaccine	D. Happens when there are more cases of disease than usual in a time or place.
5. ___ Unvaccinated	E. Medicines you can take to prevent some diseases before they happen.
6. ___ Herd Immunity	F. Someone is not vaccinated (did not receive two doses of the measles vaccine) is considered to be...

## ANSWER KEY - MATCH VOCABULARY TERM TO DEFINITION

ANSWER KEY	
MATCH VOCABULARY TERM WITH DEFINITION	
1. <u>D</u> Disease Outbreak	A. Diseases that are spread through close contact with an infected human or animal.
2. <u>C</u> Measles	B. The type of protection created when most people are vaccinated.
3. <u>A</u> Communicable Disease	C. This disease is caused by a virus and it is also the reason for this investigation.
4. <u>E</u> Vaccine	D. Happens when there are more cases of disease than usual in a time or place.
5. <u>F</u> Unvaccinated	E. Medicines you can take to prevent some diseases before they happen.
6. <u>B</u> Herd Immunity	F. Someone is not vaccinated (did not receive two doses of the measles vaccine) is considered to be...

**MARKING SUGGESTIONS TO USE/ADAPT AS NEEDED:**

**EITHER** use a rating scale for the whole worksheet, i.e., partly done (1) mostly done (2) completely done (3)

**OR** give specific criteria with marks - see some suggestions below.



**DATA**

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 for example "Plan" or "Strategy". Have fun!

You're making a title so remember to start important words with 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.

**POSSIBLE MARKING CRITERIA IF USING MORE THAN A RATING SCALE FOR WHOLE WORKSHEET:**

**EFFORT** - effort to develop ideas for name is evident /2 marks

**CREATIVITY** - name is catchy, original, and on topic /3 marks



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

**STUDENT**



**TASK 1 REPORT**

Copy the words written here onto the lines below and fill in the blank: **The name of the investigation project is \_\_\_\_\_**  
Use a pencil so you can make changes easily. Print neatly. Check your spelling and punctuation.

**The name of the investigation project is ...**

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**POSSIBLE MARKING CRITERIA: Printed accurately in full, capitalized title, neat /3 marks**

**TOTAL /10 marks**

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



**TEACHER ANSWER GUIDE AND MARKING SUGGESTIONS**

**TASK 2 IDENTIFY THE SCHOOL WHERE THE MEASLES OUTBREAK HAS HAPPENED**

MARKING SUGGESTIONS TO USE/ADAPT AS NEEDED:

EITHER use a rating scale for the whole worksheet, i.e., partly done (1) mostly done (2) completely done (3)  
OR give specific criteria with marks as suggested below.



**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.

**MARKING CRITERIA NOT NEEDED**

**SOURCE**



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

**JESSICA THE RESEARCH SCIENTIST** (suggest 2 marks)

**REPORT**



**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.

**A measles outbreak has occurred in a school. The school where the measles outbreak has occurred has been identified as Central Elementary.**

**POSSIBLE MARKING CRITERIA IF USING MORE THAN A RATING SCALE FOR WHOLE WORKSHEET:**  
Printed accurately in full, capitalized name of school, neat /2 marks

**TOTAL /5 marks**

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

**TEACHER ANSWER GUIDE AND MARKING SUGGESTIONS**

**TASK 3**

**FIND THE PERCENTAGE OF STUDENTS WITH MEASLES**

MARKING SUGGESTIONS TO USE/ADAPT AS NEEDED:

EITHER use a rating scale for the whole worksheet, i.e., partly done (1) mostly done (2) completely done (3)  
OR give specific criteria with marks as suggested below.



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

Number of students in the school **320**

Number of students with measles **14 in grade 6**

Number of students with measles **2 in grade 3**

Total number of students with measles **16**

**POSSIBLE MARKING CRITERIA IF USING MORE THAN A RATING SCALE FOR WHOLE WORKSHEET:**  
Suggest 1 mark for each calculation = 4 marks

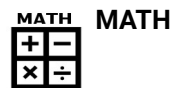


**SOURCE** Who gave you this information and what is their job?

**IAN THE PRINCIPAL**

**KATHY THE GRADE 6 TEACHER**

**CRAIG THE GRADE 3 TEACHER** (suggest 2 marks for each = 6 marks)



**MATH**

**POSSIBLE MARKING CRITERIA:** All steps for working out the percentage of students with measles are written out, and correct answer is given 5% /5 marks

**TOTAL** /15 marks

**TEACHER ANSWER GUIDE AND MARKING SUGGESTIONS**

**TASK 4 FIND THE PERCENTAGE OF PEOPLE IN THE CITY WITH MEASLES**

**MARKING SUGGESTIONS TO USE/ADAPT AS NEEDED:**

**EITHER** use a rating scale for the whole worksheet, i.e., partly done (1) mostly done (2) completely done (3)  
**OR** give specific criteria with marks as suggested below.



**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) **1600**

Number of people in the city with measles **0**

Total number of students with measles **16**

**POSSIBLE MARKING CRITERIA IF USING MORE THAN A RATING SCALE FOR WHOLE WORKSHEET:**  
Suggest 1 mark for each calculation = 3 marks

**SOURCE SOURCE**

Who gave you this information and what is their job?



**IAN THE PRINCIPAL**

**JESSICA THE RESEARCH SCIENTIST** (suggest 2 marks for each = 4 marks)

May also have written teachers Kathy gr. 6 & Craig gr. 3 who provides numbers before



**MATH MATH**

**POSSIBLE MARKING CRITERIA:** All steps for working out the percentage of people in the city with measles are written out, and correct answer is given **1%** /5 marks

**TOTAL** /12 marks

**TEACHER ANSWER GUIDE AND MARKING SUGGESTIONS**

**TASK 5**

**FIND THE PERCENTAGE OF STUDENTS THAT ARE UNVACCINATED FOR MEASLES**

MARKING SUGGESTIONS TO USE/ADAPT AS NEEDED:

EITHER use a rating scale for the whole worksheet, i.e., partly done (1) mostly done (2) completely done (3)

OR give specific criteria with marks as suggested below

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



**MS HAINES THE SCHOOL NURSE** (suggest 2 marks)



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

Total number of students **320** minus the number of students that are vaccinated **224** gives the number of students that are unvaccinated **96**

Take the number of unvaccinated students and divide it by the total number of students **0.3**

Then multiply this number by 100 to get the percentage **30%**

**POSSIBLE MARKING CRITERIA IF USING MORE THAN A RATING SCALE FOR WHOLE WORKSHEET:**

Suggest 1 mark for each calculation = 5 marks



**POSSIBLE MARKING CRITERIA: All** steps for working out the percentage of students that are unvaccinated for measles are written out, and correct answer is given **30%** /5 marks

**TOTAL** /12 marks

**TEACHER ANSWER GUIDE AND MARKING SUGGESTIONS**

**TASK 6 FIND THE NUMBER OF STUDENTS THAT NEED TO BE VACCINATED FOR THE SCHOOL TO BE SAFE**

MARKING SUGGESTIONS TO USE/ADAPT AS NEEDED:

EITHER use a rating scale for the whole worksheet, i.e., partly done (1) mostly done (2) completely done (3)  
OR give specific criteria with marks as suggested below.



**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 **0.95**  
Multiply the answer above by the total number of students **304**

**POSSIBLE MARKING CRITERIA IF USING MORE THAN A RATING SCALE FOR WHOLE WORKSHEET:**  
Suggest 1 mark for each calculation = 2 marks



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

**MS HAINES THE SCHOOL NURSE** (suggest 2 marks)



**MATH**

**POSSIBLE MARKING CRITERIA:** All steps for working out the number of students that need to be vaccinated for the school to be SAFE (herd immunity) are written out, and correct answer is given **304** /3 marks

**TOTAL** /7 marks

# CREATIVE PRESENTATION

- **OUTLINE**
- **PLANNING SHEET**
- **MARKING RUBRIC**

# MEASLES INVESTIGATOR - CREATIVE PRESENTATION

Choose one or more ways to express yourself creatively about anything you have learned in your role as public health investigator.

You can....

- Write a poem.
- Draw or paint a picture.
- Create a sculpture or some 3-D form such as lego.
- Create a digital art piece, for example, images that have been manipulated digitally. You could also make a video, for example, of a disease outbreak, or a movie trailer for saving the world from a disease outbreak.
- Create a drama or dance performance.
- Develop something musically such as a song or instrumental piece and perform it in person, or present as an audio or video recording. For example, make a music video changing the words to a song you like.

You will be given some class time to develop your creative presentation but you may also like to do some of this on your own time either individually or in pairs or groups. You will have almost three weeks to get a quality presentation completed. Make sure to choose a creative project that can be finished in this time-frame. It is a good idea to map out the time needed as part of your plan.

# PLAN FOR MEASLES INVESTIGATOR - CREATIVE PRESENTATION

NAME(S)

What do you plan to do? Here are some suggestions or you might have other ideas.

- Write a poem.
- Draw or paint a picture.
- Create a sculpture or some 3-D form such as lego.
- Create a digital art piece, for example, images that have been manipulated digitally. You could also make a video, for example, of a disease outbreak, or a movie trailer for saving the world from a disease outbreak.
- Create a drama or dance performance.
- Develop something musically such as a song or instrumental piece and perform it in person, or present as an audio or video recording. For example, make a music video changing the words to a song you like.

Describe your plan here:

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Write Due Date here \_\_\_\_\_.

Estimate how much time you will need in approximate hours, for example 2 hours. \_\_\_\_\_

If needed, use this space to plan work outside of class time. For example, who will do what, when (date/time), where, what materials will be needed.



## MARKING RUBRIC FOR CREATIVE PRESENTATION

Student Name(s)		Due Date			
<b>Measles Investigator - Creative Presentation</b>					
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Presentation plan</b>	No plan	Partial/ incomplete plan not much explanation about the creative part	Plan is made but creative details still need work	Plan is well thought out and creative details are described	Detailed plan for a very strong creative presentation
<b>Presentation development</b>	Not developed	Developing but still needs some work to complete	Mostly developed, could be stronger in a few areas	Completely developed	Outstanding level of development, strong creative effort involved
<b>Class Presentation</b>	Nothing is presented	Presentation is not easy to follow or there are a number of problems	Presentation is mostly easy to follow and some parts are well done	Presentation is easy to follow and creative throughout	Presentation is ready to go and engages audience, creativity is evident throughout
<b>TOTAL</b>					