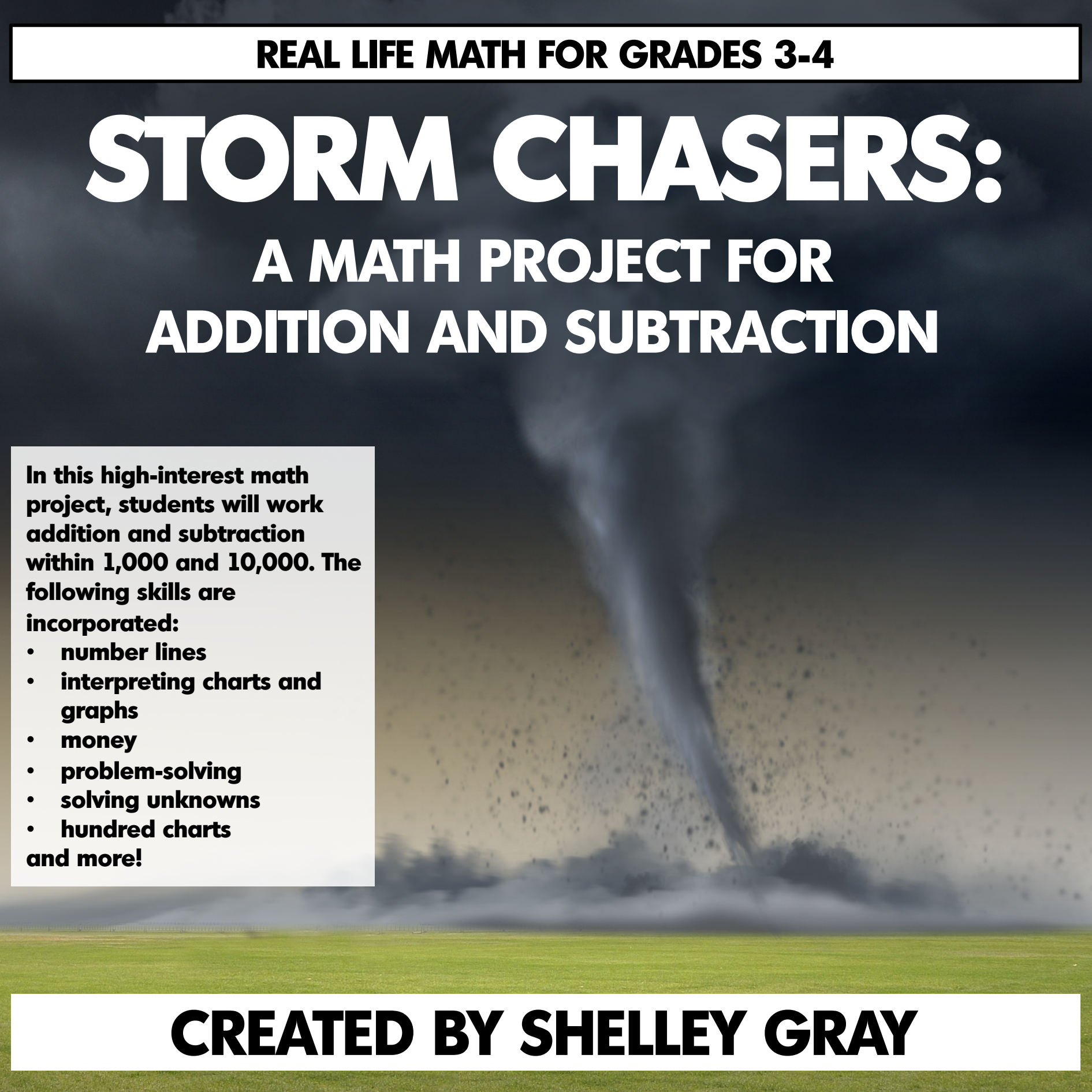
REAL LIFE MATH FOR GRADES 3-4

STORM CHASERS:

A MATH PROJECT FOR ADDITION AND SUBTRACTION



In this high-interest math project, students will work addition and subtraction within 1,000 and 10,000. The following skills are incorporated:

- **number lines**
- **interpreting charts and graphs**
- **money**
- **problem-solving**
- **solving unknowns**
- **hundred charts**

and more!

CREATED BY SHELLEY GRAY

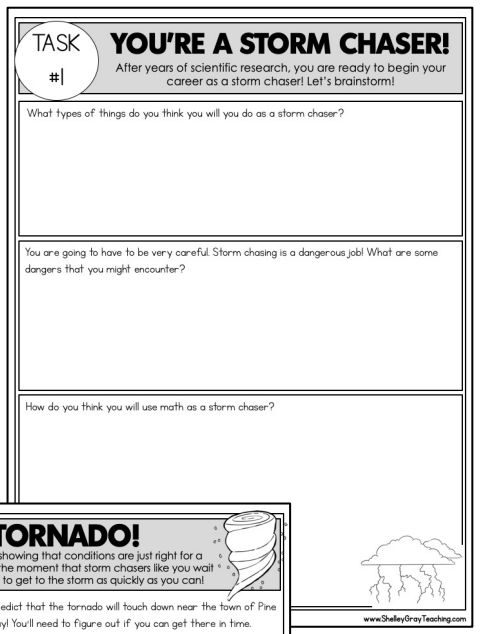
ABOUT THIS RESOURCE

Are you looking for a way to reinforce addition and subtraction in an engaging way that helps your students make connections? "Storm Chasers" is a **real-life math project** where students will complete ten different tasks, each one focusing on addition and subtraction to 1,000 and 10,000 in a real-life context. This project will help your students see how addition and subtraction is used in real life.

You might choose to print specific tasks to use during Math centers, or you might make a booklet out of all of the tasks and let your students choose which one to do when. The choice is yours.

Take a look at what you'll find inside this math project:

TASK #1: YOU'RE A STORM CHASER!
After years of scientific research, you are ready to begin your career as a storm chaser! Let's brainstorm some things that you might be doing in this new job.


TASK #1

YOU'RE A STORM CHASER!

After years of scientific research, you are ready to begin your career as a storm chaser! Let's brainstorm!

What types of things do you think you will you do as a storm chaser?

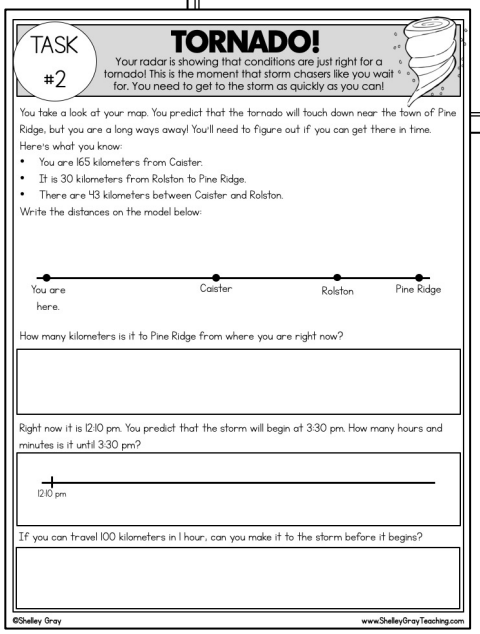
You are going to have to be very careful. Storm chasing is a dangerous job! What are some dangers that you might encounter?

How do you think you will use math as a storm chaser?

www.ShelleyGrayTeaching.com

TASK #2: TORNADO!
Your radar is showing that conditions are just right for a tornado! This is the moment that storm chasers like you wait for. You need to get to the storm as quickly as you can!

Skills: addition on a number line, time


TASK #2

TORNADO!

Your radar is showing that conditions are just right for a tornado! This is the moment that storm chasers like you wait for. You need to get to the storm as quickly as you can!

You take a look at your map. You predict that the tornado will touch down near the town of Pine Ridge, but you are a long ways away! You'll need to figure out if you can get there in time.

Here's what you know:

- You are 165 kilometers from Caister.
- It is 30 kilometers from Rolston to Pine Ridge.
- There are 43 kilometers between Caister and Rolston.

Write the distances on the model below:

You are here. Caister Rolston Pine Ridge

How many kilometers is it to Pine Ridge from where you are right now?

Right now it is 12:10 pm. You predict that the storm will begin at 3:30 pm. How many hours and minutes is it until 3:30 pm?

12:10 pm

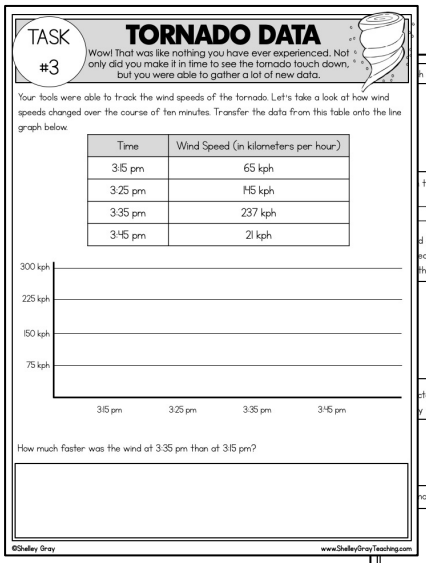
If you can travel 100 kilometers in 1 hour, can you make it to the storm before it begins?

©Shelley Gray www.ShelleyGrayTeaching.com

TASK #3: TORNADO DATA

Wow! That was like nothing you have ever experienced. Not only did you make it in time to see the tornado touch down, but you were able to gather a lot of new data.

Skills: interpreting data from a chart, line graph, problem solving


TASK #3

TORNADO DATA

Wow! That was like nothing you have ever experienced. Not only did you make it in time to see the tornado touch down, but you were able to gather a lot of new data.

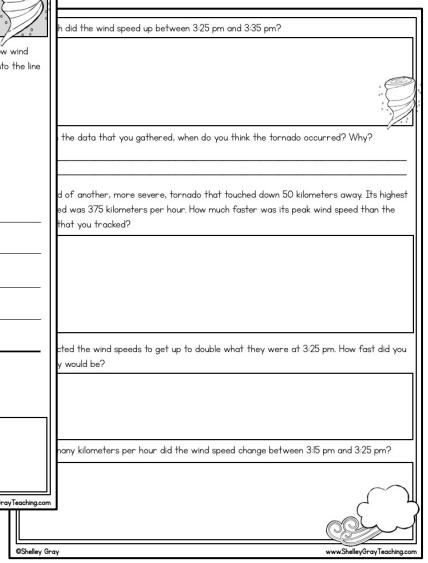
Your tools were able to track the wind speeds of the tornado. Let's take a look at how wind speeds changed over the course of ten minutes. Transfer the data from this table onto the line graph below.

Time	Wind Speed (in kilometers per hour)
3:15 pm	65 kph
3:25 pm	115 kph
3:35 pm	237 kph
3:45 pm	21 kph

300 kph
225 kph
150 kph
75 kph
3:15 pm 3:25 pm 3:35 pm 3:45 pm

How much faster was the wind at 3:35 pm than at 3:15 pm?

©Shelley Gray www.ShelleyGrayTeaching.com


did the wind speed up between 3:25 pm and 3:35 pm?

the data that you gathered, when do you think the tornado occurred? Why?

of another, more severe, tornado that touched down 50 kilometers away. Its highest ed was 375 kilometers per hour. How much faster was its peak wind speed than the that you tracked?

ted the wind speeds to get up to double what they were at 3:25 pm. How fast did you y would be?

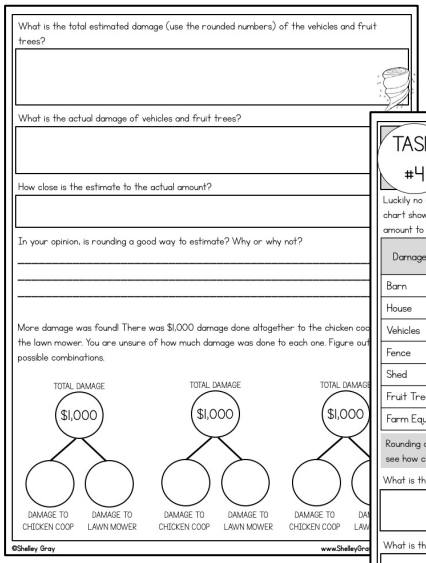
any kilometers per hour did the wind speed change between 3:15 pm and 3:25 pm?

©Shelley Gray www.ShelleyGrayTeaching.com

TASK #4: DEVASTATION

Even though tornados and storms excite you, you must remember they sometimes cause a lot of damage to people's property. Let's take a look at the damage that was done to one farm in the area.

Skills: money, rounding to nearest 100, estimates vs actual, three-digit addition/subtraction, making 1000


What is the total estimated damage (use the rounded numbers) of the vehicles and fruit trees?

What is the actual damage of vehicles and fruit trees?

How close is the estimate to the actual amount?

In your opinion, is rounding a good way to estimate? Why or why not?

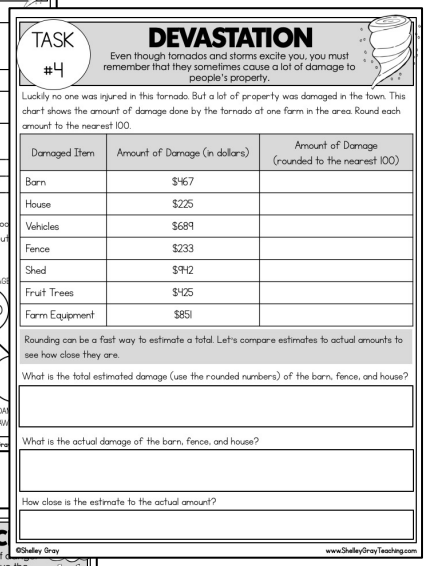
More damage was found! There was $1,000 damage done altogether to the chicken coo the lawn mower. You are unsure of how much damage was done to each one. Figure out possible combinations.

TOTAL DAMAGE $1,000 — DAMAGE TO CHICKEN COOP / DAMAGE TO LAWN MOWER

TOTAL DAMAGE $1,000 — DAMAGE TO CHICKEN COOP / DAMAGE TO LAWN MOWER

TOTAL DAMAG $1,000 — DAMAGE TO CHICKEN COOP / LAW

©Shelley Gray www.ShelleyGra


TASK #4

DEVASTATION

Even though tornados and storms excite you, you must remember that they sometimes cause a lot of damage to people's property.

Luckily no one was injured in this tornado. But a lot of property was damaged in the town. This chart shows the amount of damage done by the tornado at one farm in the area. Round each amount to the nearest 100.

Damaged Item	Amount of Damage (in dollars)	Amount of Damage (rounded to the nearest 100)
Barn	$467	
House	$225	
Vehicles	$689	
Fence	$233	
Shed	$942	
Fruit Trees	$425	
Farm Equipment	$851	

Rounding can be a fast way to estimate a total. Let's compare estimates to actual amounts to see how close they are.

What is the total estimated damage (use the rounded numbers) of the barn, fence, and house?

What is the actual damage of the barn, fence, and house?

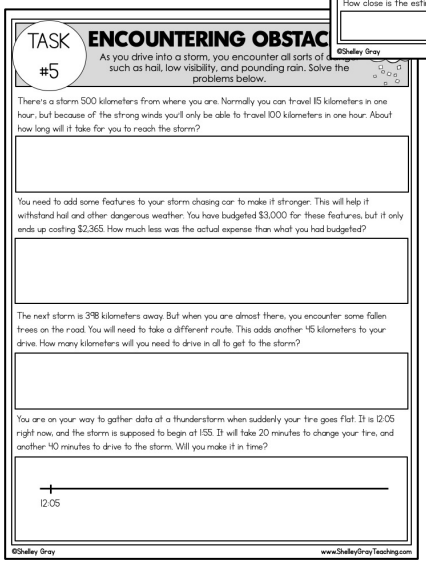
How close is the estimate to the actual amount?

©Shelley Gray www.ShelleyGrayTeaching.com

TASK #5: ENCOUNTERING OBSTACLES

As you drive into a storm, you encounter all sorts of danger such as hail, low visibility, and pounding rain. Solve the problems.

Skills: problem-solving, money


TASK #5

ENCOUNTERING OBSTAC

As you drive into a storm, you encounter all sorts of such as hail, low visibility, and pounding rain. Solve the problems below.

There's a storm 500 kilometers from where you are. Normally you can travel 115 kilometers in one hour, but because of the strong winds you'll only be able to travel 100 kilometers in one hour. About how long will it take for you to reach the storm?

You need to add some features to your storm chasing car to make it stronger. This will help it withstand hail and other dangerous weather. You have budgeted $3,000 for these features, but it only ends up costing $2,365. How much less was the actual expense than what you had budgeted?

The next storm is 398 kilometers away. But when you are almost there, you encounter some fallen trees on the road. You will need to take a different route. This adds another 45 kilometers to your drive. How many kilometers will you need to drive in all to get to the storm?

You are on your way to gather data at a thunderstorm when suddenly your tire goes flat. It is 12:05 right now, and the storm is supposed to begin at 1:55. It will take 20 minutes to change your tire, and another 40 minutes to drive to the storm. Will you make it in time?

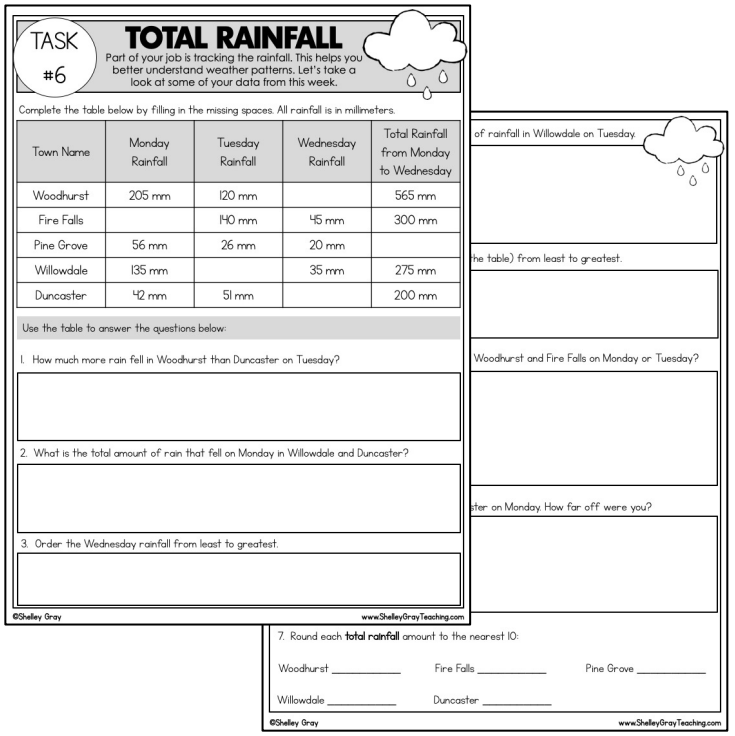
12:05

©Shelley Gray www.ShelleyGrayTeaching.com

TASK #6: TOTAL RAINFALL

Part of your job is tracking the rainfall. This helps you better understand weather patterns. Let's take a look at some of your data from this week.

Skills: finding unknowns using addition/subtraction, interpreting data, using a chart/table, rounding to the nearest 10



TASK #6

TOTAL RAINFALL

Part of your job is tracking the rainfall. This helps you better understand weather patterns. Let's take a look at some of your data from this week.

Complete the table below by filling in the missing spaces. All rainfall is in millimeters.

Town Name	Monday Rainfall	Tuesday Rainfall	Wednesday Rainfall	Total Rainfall from Monday to Wednesday
Woodhurst	205 mm	120 mm		565 mm
Fire Falls		140 mm	45 mm	300 mm
Pine Grove	56 mm	26 mm	20 mm	
Willowdale	135 mm		35 mm	275 mm
Duncaster	42 mm	51 mm		200 mm

Use the table to answer the questions below:

1. How much more rain fell in Woodhurst than Duncaster on Tuesday?

2. What is the total amount of rain that fell on Monday in Willowdale and Duncaster?

3. Order the Wednesday rainfall from least to greatest.

of rainfall in Willowdale on Tuesday.

he table) from least to greatest.

Woodhurst and Fire Falls on Monday or Tuesday?

ter on Monday. How far off were you?

7. Round each **total rainfall** amount to the nearest 10:

Woodhurst _____ Fire Falls _____ Pine Grove _____

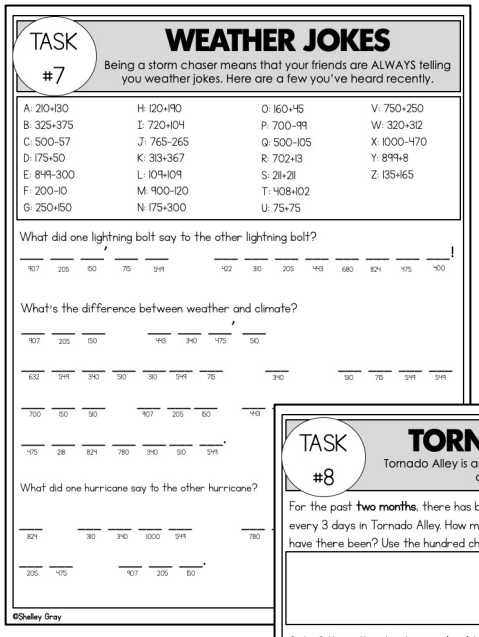
Willowdale _____ Duncaster _____

©Shelley Gray www.ShelleyGrayTeaching.com

TASK #7: WEATHER JOKES

Being a storm chaser means that your friends are ALWAYS telling you weather jokes. Here are a few you've heard recently.

Skills: addition and subtraction within 1000



TASK #7

WEATHER JOKES

Being a storm chaser means that your friends are ALWAYS telling you weather jokes. Here are a few you've heard recently.

A: 210+130	H: 120+190	O: 160+45	V: 750+250
B: 325+375	I: 720+104	P: 700-99	W: 320+312
C: 500-57	J: 765-265	Q: 500-105	X: 1000-470
D: 175+50	K: 313+367	R: 702+13	Y: 899+8
E: 849-300	L: 109+109	S: 211+211	Z: 135+165
F: 200-10	M: 900-120	T: 408+102	
G: 250+150	N: 175+300	U: 75+75	

What did one lightning bolt say to the other lightning bolt?

907 205 150 715 549 422 310 205 443 680 824 475 400

What's the difference between weather and climate?

907 205 150 443 340 475 510

632 549 340 510 310 549 715 340 510 715 549 549

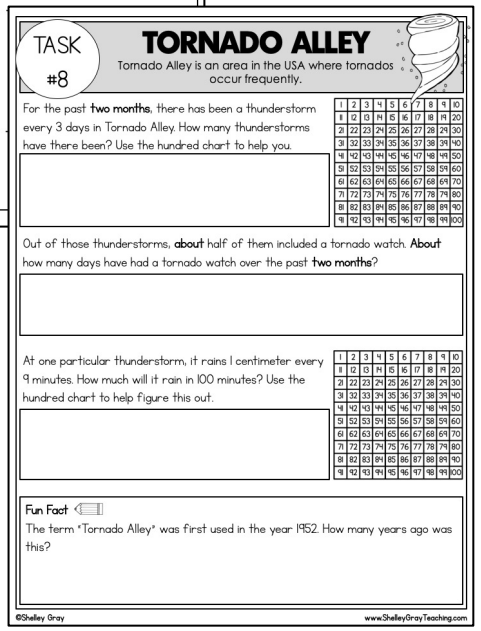
700 150 510 907 205 150 443

475 218 824 780 340 510 549

What did one hurricane say to the other hurricane?

824 310 340 1000 549 780

205 475 907 205 150



TASK #8

TORNADO ALLEY

Tornado Alley is an area in the USA where tornados occur frequently.

For the past **two months**, there has been a thunderstorm every 3 days in Tornado Alley. How many thunderstorms have there been? Use the hundred chart to help you.

Out of those thunderstorms, **about** half of them included a tornado watch. **About** how many days have had a tornado watch over the past **two months**?

At one particular thunderstorm, it rains 1 centimeter every 9 minutes. How much will it rain in 100 minutes? Use the hundred chart to help figure this out.

Fun Fact

The term "Tornado Alley" was first used in the year 1952. How many years ago was this?

©Shelley Gray www.ShelleyGrayTeaching.com

TASK #8: TORNADO ALLEY

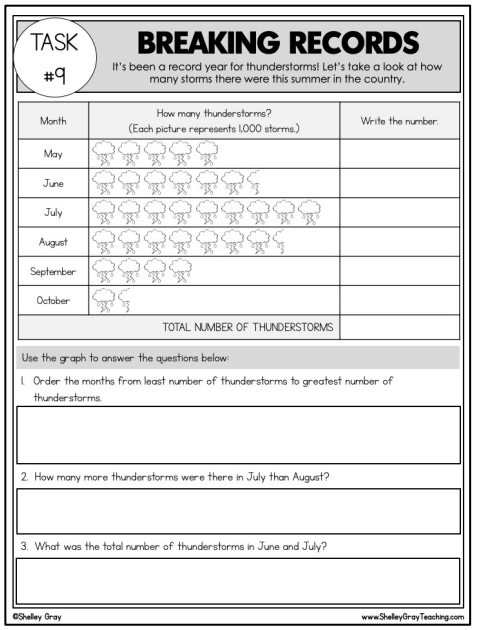
Tornado Alley is an area in the USA where tornados occur frequently. Let's use a hundred chart to learn about the storms in Tornado Alley this year.

Skills: patterns in a hundred chart, problem solving

TASK #9: BREAKING RECORDS

It's been a record year for thunderstorms! Let's take a look at how many storms there were this summer in the country.

Skills: picture graph, interpreting data, multiples of 1000, ordering and comparing



TASK #9

BREAKING RECORDS

It's been a record year for thunderstorms! Let's take a look at how many storms there were this summer in the country.

Month	How many thunderstorms? (Each picture represents 1,000 storms.)	Write the number.
May		
June		
July		
August		
September		
October		
	TOTAL NUMBER OF THUNDERSTORMS	

Use the graph to answer the questions below:

1. Order the months from least number of thunderstorms to greatest number of thunderstorms.

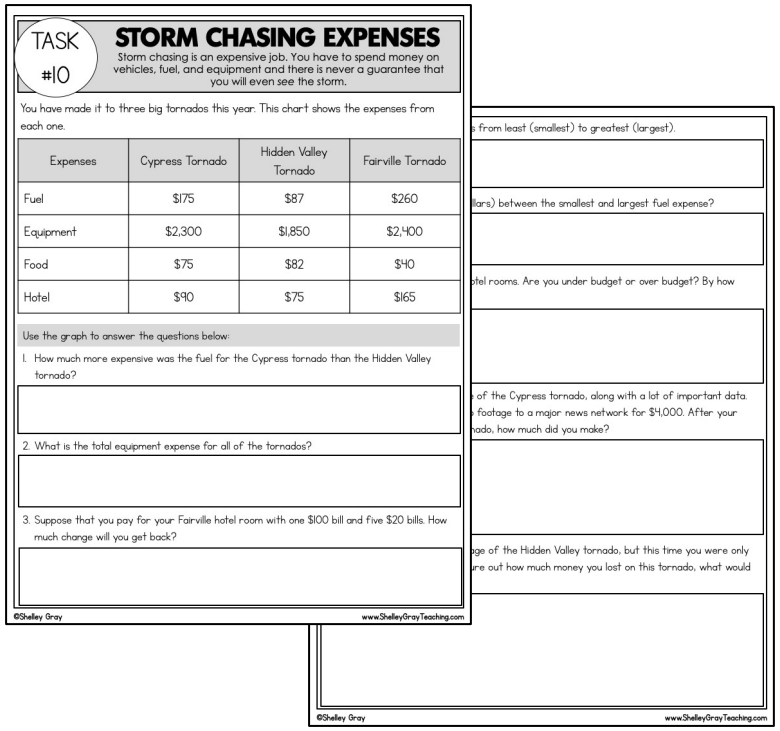
2. How many more thunderstorms were there in July than August?

3. What was the total number of thunderstorms in June and July?

TASK #10: STORM CHASING EXPENSES

Storm chasing is an expensive job. You have to spend money on vehicles, fuel, and equipment and there is never a guarantee that you will even see the storm. Let's compare the amount that you've spent on the last three tornados.

Skills: addition, subtraction, ordering, problem solving



TASK #10

STORM CHASING EXPENSES

Storm chasing is an expensive job. You have to spend money on vehicles, fuel, and equipment and there is never a guarantee that you will even see the storm.

You have made it to three big tornados this year. This chart shows the expenses from each one.

Expenses	Cypress Tornado	Hidden Valley Tornado	Fairville Tornado
Fuel	$175	$87	$260
Equipment	$2,300	$1,850	$2,400
Food	$75	$82	$40
Hotel	$90	$75	$165

Use the graph to answer the questions below:

1. How much more expensive was the fuel for the Cypress tornado than the Hidden Valley tornado?

2. What is the total equipment expense for all of the tornados?

3. Suppose that you pay for your Fairville hotel room with one $100 bill and five $20 bills. How much change will you get back?

ANSWER KEYS ARE INCLUDED.

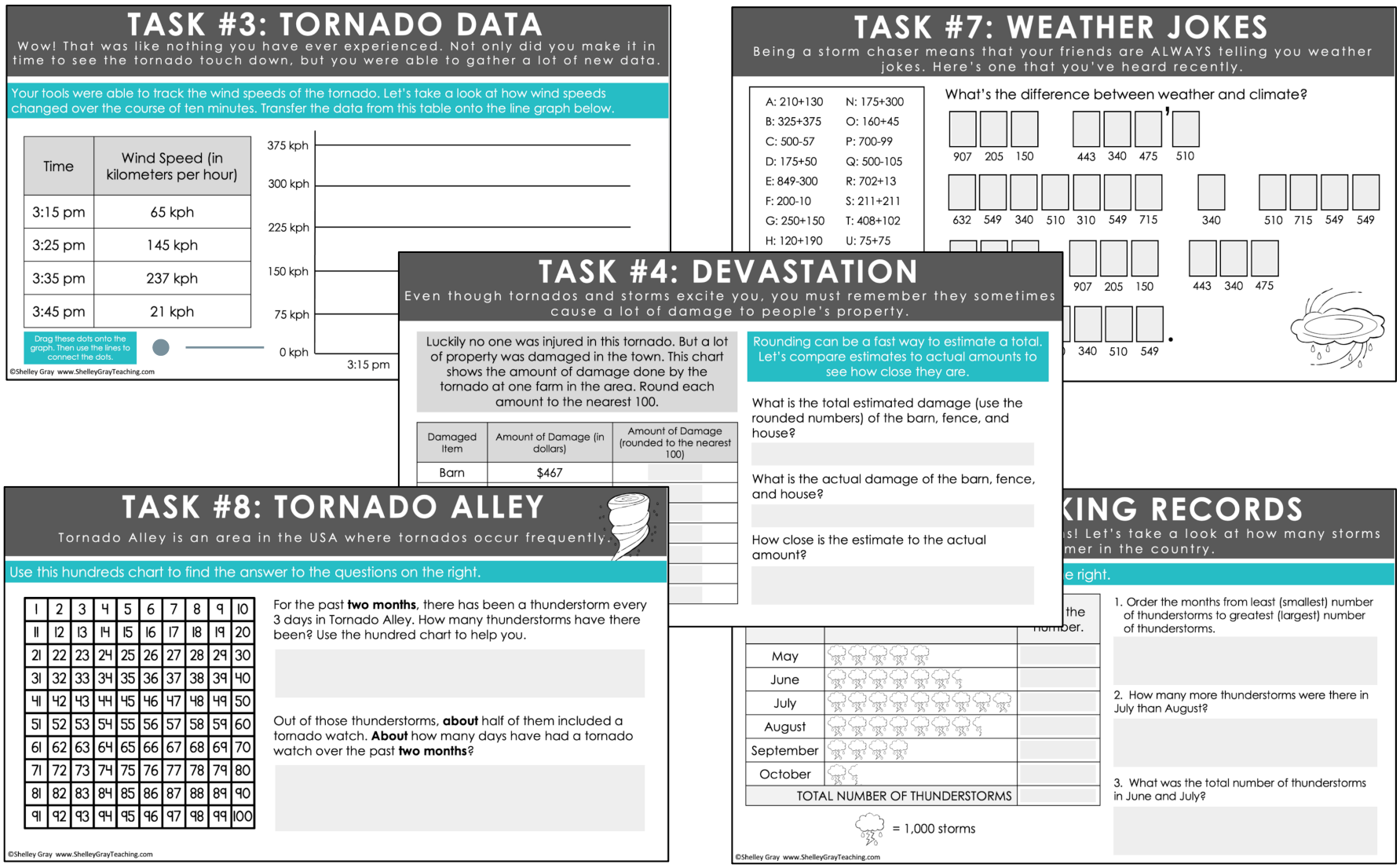
DIGITAL VERSION

This math project is also included in a digital version that is optimized for digital use. This digital version is designed in Google Slides™, but if you use Microsoft TEAMS, you can use it by saving as a PowerPoint first.

Optimized for digital use means that this is **not** simply the PDF document with text boxes added.

Instead, this digital version includes color, room for typing, and moveable pieces that students will manipulate.

Here is a sample of what the digital slides look like.



WAYS TO USE MATH PROJECTS IN YOUR CLASSROOM:

Math projects are an ideal way to consolidate learning. I recommend using them as an engaging activity AFTER skills have been learned rather than during learning. You will likely find that engagement is very high and that your students ask to do more of these!

There are many ways to use math projects in your classroom. Some of the most popular are:

- a small-group or pairs activity
- a guided math activity to allow you to see where your students are struggling
- a fun, rewarding way to engage your early finishers
- a low-prep, easy-to-implement activity for a substitute teacher

Enjoy!

Shelley Gray
www.ShelleyGrayTeaching.com