



Alternative Method of Instruction
Middle School – 7th Grade
Day 2

Name: _____

Name: _____

Genetics: Frosty's Flurry of Phenotypes




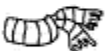





















Ho Ho Ho! Fresh snow is on the ground and it's time to build your perfect Snowman or Snowgirl! Use the chart of traits below to complete the following Punnett Square problems and help them determine what your winter friend will look like.

What You Do:

Use the following Snowman Traits to answer the questions and to create your Snowperson:

Name: _____



Trait	Homozygous Dominant	Heterozygous	Homozygous Recessive
Height (V)	Very Tall = >17 cm VV	Medium = 10cm–17cm Vv	Short = <10 cm vv
Diameter of Largest Snow Ball (W)	Wide = >10 cm WW	Medium = 8cm–10 cm Ww	Skinny = <8 cm ww
Number of Snowballs (T)	3 Snowballs TT 	2 Snowballs Tt 	1 Snowball tt 
Scarf (S)	Scarf SS 	Scarf Ss 	No Scarf ss
Earmuffs (E)	Earmuffs EE 	Earmuffs Ee 	No earmuffs ee
Eyes (C)	Coal eyes CC 	Coal eyes Cc 	Button Eyes cc 
Number of Buttons on Snowman (F)	4 Buttons FF 	2 Buttons Ff 	No Buttons ff
Mouth Shape (J)	Joyful JJ 	Joyful Jj 	Sad jj 
Number of Branches on Arms (B)	Three Branches BB 	Two Branches Bb 	No Branches bb 
Carrot Nose Length (L)	Long = 3 cm LL 	Long = 3 cm Ll 	Short = 1 cm ll 
Top Hat (H)	Top Hat HH 	Top Hat Hh 	No Top Hat hh
Corn Cob Pipe (P)	Pipe PP 	Pipe Pp 	No Pipe pp

Genetics:

Frosty's Flurry of Phenotypes

Name: _____

What You Do: Use the chart on the previous page to answer the following questions:

- Explain why we use the letters **V** and **v** to represent the alleles for **height** in the above table:

- Some of the traits in the chart are not simple cases of dominant and recessive. List those traits that show a blending of genes:

- Provide the genotype(s) for the following phenotypes:

a. Long Nose: _____	e. Hybrid Coal Eyes: _____
b. Purebred Top Hat: _____	f. Two branches: _____
c. No Pipe: _____	g. Earmuffs: _____
d. Joyful Mouth: _____	h. Skinny Snowball: _____
- Provide the phenotype for the following genotypes:

a. Ll: _____	e. ss: _____
b. bb: _____	f. Vv: _____
c. WW: _____	g. PP: _____
d. tt: _____	h. ee: _____
- Frosty and Franny are expecting a new little snowflake. Frosty, who is a homozygous short nose snowman, is hoping that his new baby will look like its mother, Franny, who has a long nose.
 - If Franny's father was a heterozygous long nose, and her mother was a short nose, what is Franny's genotype? Complete a Punnett square to determine the possible results that will help you to determine her genotype.

Franny's genotype: _____
 - What is Frosty's genotype? _____
 - Complete a Punnett Square to determine the possibilities of offspring from Frosty and Franny.
 - List the possible genotypes from this cross:
 - List the possible phenotypes from this cross:
 - What is the probability of a long nose? _____ %
 - What is the probability of a short nose? _____ %
- Snowy brags that the snow drift his family comes from is a pure line of coal eyed snowpeople. He marries a snowgirl who has the cutest little button eyes in the entire winter wonderland. How many of their children will be able to brag that have coal eyes as well?

Now, use the chart on the previous page to make your own snowperson! Flip two coins for each trait and see what you get! Heads is a dominant trait, tails is recessive. Place your phenotype and genotype in the chart below and then draw your snowperson using the pictures in the chart to guide you!

Trait	Genotype	Phenotype	Trait	Genotype	Phenotype
Height			# of Buttons on Snowman		
Diameter of Largest Snowball			Mouth Shape		
# of Snowballs			# of Branches on Arms		
Scarf			Carrot Nose Length		
Earmuffs			Top Hat		
Eyes			Corn Cob pipe		

SOCIAL STUDIES – 7TH GRADE

Name: _____

Lesson 2

Subject: Advanced Technology in the Ancient World

Objective: Students will explore the concept of advanced technology in the ancient world and gain an understanding of the remarkable achievements and innovations made by ancient civilizations. They will examine specific examples of advanced technologies and discuss their significance and impact on these societies.

Advanced Technology in the Ancient World

Whether it be Egyptian pyramids and construction techniques, Roman aqueducts and engineering, Chinese inventions like gunpowder, compass, and papermaking, or Greek mathematics and astronomy.

Advanced technology in the ancient world had a profound significance and enduring impact on these societies. The Egyptian civilization, with their remarkable construction techniques, left a lasting legacy through the awe-inspiring pyramids. These colossal structures showcased their mastery of engineering and architectural principles, serving as monumental tombs for pharaohs and symbols of their divine rulership.



Giza pyramid complex. (2023, July 25). In *Wikipedia*. https://en.wikipedia.org/wiki/Giza_pyramid_complex

In Rome, the ingenious aqueducts demonstrated exceptional engineering skills, enabling the transportation of fresh water over long distances, fostering urban growth, and sustaining a thriving populace. The Chinese, known for their revolutionary inventions, introduced gunpowder, which transformed warfare and opened up new avenues for technological progress. Their magnetic compass revolutionized navigation, facilitating sea voyages and trade networks that extended across continents.

Moreover, the Chinese mastery of papermaking brought about a revolution in communication, knowledge dissemination, and cultural preservation.



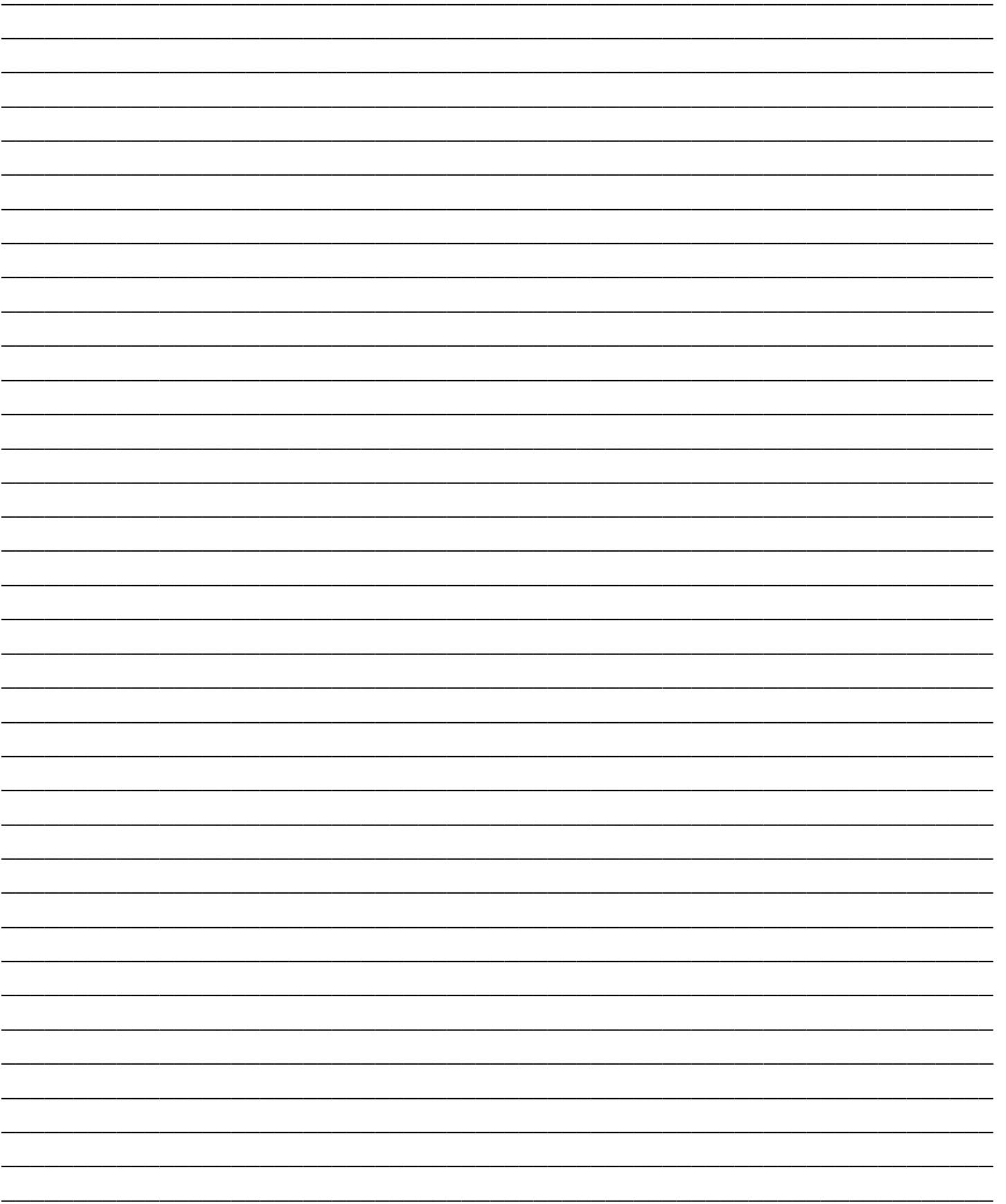
Roman aqueduct. (2023, July 19). In *Wikipedia*. https://en.wikipedia.org/wiki/Roman_aqueduct

Meanwhile, the Greeks made groundbreaking strides in mathematics and astronomy, laying the foundation for modern scientific thought. Through their innovative minds, they advanced knowledge in geometry, calculus, and celestial observations, shaping the course of human intellectual progress. These achievements stand as a testament to the brilliance of ancient civilizations, demonstrating how their pioneering technologies continue to influence and inspire humanity even in the modern era.

1. How did the advanced construction techniques used by the ancient Egyptians in building the pyramids contribute to their enduring significance and cultural impact?

2. Roman aqueducts not only provide a reliable water supply but also influence the growth and development of Roman cities and society as a whole, how does a constant supply of water assure to grow a population?

3. The Chinese invented items such as gunpowder, the compass, and papermaking. How did they shape the course of history, both in China and beyond, in terms of warfare, and exploration?



MATH – 7TH GRADE

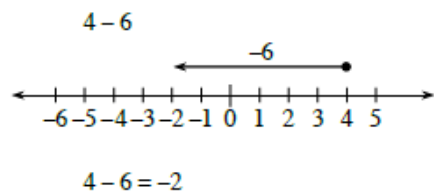
SUBTRACTION OF INTEGERS

Subtraction of integers may also be represented using the concrete models of number lines and (+) and (-) tiles. Subtraction is the opposite of addition so it makes sense to do the opposite actions of addition.

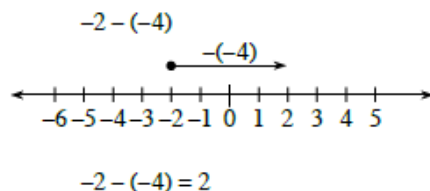
When using the number line, adding a positive integer moves to the right so subtracting a positive integer moves to the left. Adding a negative integer move to the left so subtracting a negative integer moves to the right.

When using the tiles, addition means to place additional tile pieces into the picture and look for zeros to simplify. Subtraction means to remove tile pieces from the picture. Sometimes you will need to place zero pairs in the picture before you have a sufficient number of the desired pieces to remove. For additional information, see the Math Notes box in Lesson 3.2.2 of the *Core Connections, Course 2* text.

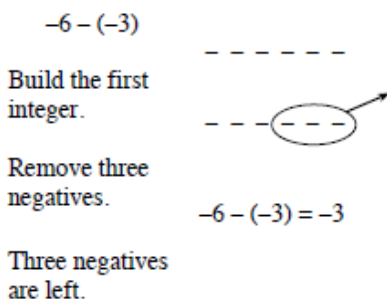
Example 1



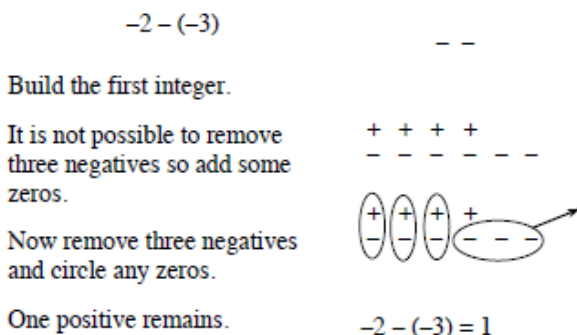
Example 1



Example 3



Example 4



Problems

Find each difference. Use one of the models for at least the first five differences.

1. $-6 - (-2)$
2. $2 - (-3)$
3. $6 - (-3)$
4. $3 - 7$
5. $7 - (-3)$
6. $7 - 3$
7. $5 - (3)$
8. $-12 - (-10)$
9. $-12 - 10$
10. $12 - (-10)$
11. $-6 - (-3) - 5$
12. $6 - (-3) - 5$
13. $8 - (-8)$
14. $-9 - 9$
15. $-9 - 9 - (-9)$

PHYSICAL EDUCATION – 7TH GRADE

Name: _____

AMI Day 2 Fitness Menu

Use the checklist below and choose 3 activities from each category of cardio, upper body, lower body and core. Do each activity for 1 minute. Take a 2-3 minute rest and complete those same activities again for 1 minute each. Take a 2-3 minute break and complete those same activities one last time for one minute each. Use the box next to each exercise to check off the activity you choose. As you complete your exercises, please make check marks in the box next to the exercise.

Cardio		Upper Body		Lower Body		Core	
<input type="checkbox"/>	Jump Rope	<input type="checkbox"/>	Push Ups	<input type="checkbox"/>	Squats	<input type="checkbox"/>	Sit Ups
<input type="checkbox"/>	Run in Place	<input type="checkbox"/>	Tricep Dips	<input type="checkbox"/>	Lunges	<input type="checkbox"/>	Crunches
<input type="checkbox"/>	Burpees	<input type="checkbox"/>	High Plank	<input type="checkbox"/>	Calf Raises	<input type="checkbox"/>	V-Ups
<input type="checkbox"/>	Mountain Climbers	<input type="checkbox"/>	Arm Circles	<input type="checkbox"/>	Leg Raises	<input type="checkbox"/>	Bicycles
<input type="checkbox"/>	Speed Skaters	<input type="checkbox"/>	Downward Dog	<input type="checkbox"/>	Jump Squat	<input type="checkbox"/>	Scissors
<input type="checkbox"/>	Jumping Jacks	<input type="checkbox"/>	Shoulder Taps	<input type="checkbox"/>	Side Lunges	<input type="checkbox"/>	Plank

Make sure to stretch after you complete three rounds of the activities you choose. Use the space below to reflect and write which activities were easiest for you and which activities were more challenging. What can you do to make the more challenging activities easier to increase your strength and endurance?

READING – 7TH GRADE

Name: _____

For each AMI snow day, students should spend 20 minutes reading. Please use the space below to log your reading.

Title: _____

Format (mark one)

Book

Magazine

eBook

Other: _____

Minutes spent reading: _____

ELECTIVES – 7TH GRADE

Student Name: _____

Directions: Choose **ONE** activity from this list of options to complete for each day of AMI work. Please have an adult initial any activities that you complete for AMI days.

Art	Draw or paint a still life picture of something in your home. _____ initials _____ date	Create a short movie about what you like to do on a snow day _____ Initials _____ date
Music	Practice your band instrument. _____ initials _____ date	Listen to your favorite song and sing along, or . . . Compose an original song. _____ Initials _____ date
Industrial Tech PLTW EbD	Repair something in your home, or . . . Build a fort, either inside your home or with snow outside. _____ initials _____ date	Create a Rube Goldberg machine, or . . . Build a bridge out of something in your home. _____ Initials _____ date
Drama	Act our or record a skit with a family member or friend. _____ initials _____ date	Watch a comedy movie or musical. _____ Initials _____ date
Family and Consumer Science	Ask your adults about budgeting tips. _____ initials _____ date	Make yourself a snack using or creating a recipe. _____ Initials _____ date
World Language / Cultures	Find something in your home from another country and write or tell someone about it. _____ initials _____ date	List your favorite holiday traditions and ask family members or acquaintances about their origins. _____ Initials _____ date