

# **TASC SCIENCE IN THE ADULT EDUCATION CLASSROOM**

**RAEN SPRING COMMON CORE WORKSHOPS**

**2018**



# WELCOME!!!

- YOUR FACILITATORS FOR THE DAY:

- JENNIFER KENT-ISAACS

CAYUGA-ONONDAGA BOCES

- RANDY RAUX

MADISON-ONEIDA BOCES

# MORNING AGENDA

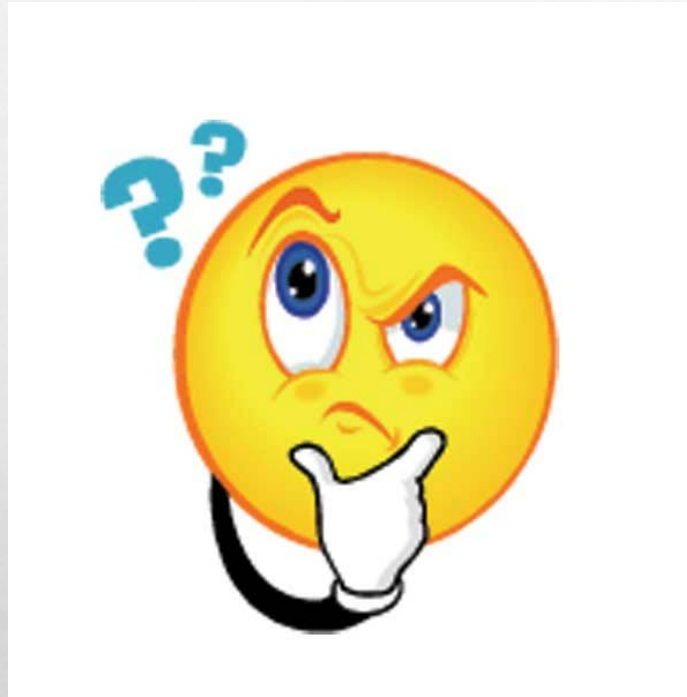
- THIS MORNING
  - REVIEWING WHAT'S NEW WITH THE TASC SCIENCE FORMS J, K, & L
    - USING THE TASCTEST.COM WEBSITE TO FIND:
      - TASC J, K, & L OBJECTIVE STRUCTURE
      - J,K,L SCIENCE FRAMEWORK
      - PRACTICE QUESTIONS FOR TASC SCIENCE
  - HIGH TASC EMPHASIS TOPIC: HS-LS1-5 STANDARD
    - PHOTOSYNTHESIS AND CELLULAR RESPIRATION

# WHAT'S NEW WITH TASC™ SCIENCE TEST

- [TASCTEST.COM](https://tasctest.com) WEBSITE :
  - TASC J, K, & L OBJECTIVE STRUCTURE
  - J,K,L SCIENCE BLUEPRINTS/Framework
  - PRACTICE QUESTIONS FOR TASC SCIENCE

ON YOUR TABLETS, LETS TAKE A LOOK AT THE WEBSITE...

# SO HOW DO WE USE THIS INFORMATION IN THE CLASSROOM???

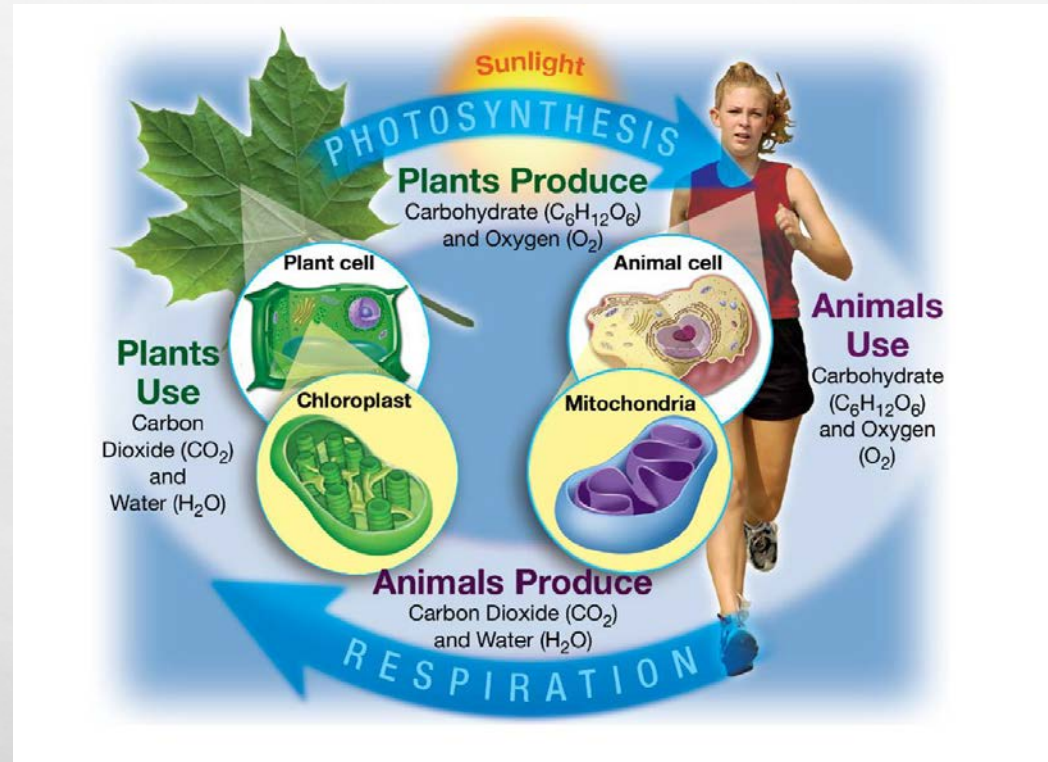


# USE THE STANDARDS...

- TASC SCIENCE BLUEPRINTS: FOCUS ON STANDARDS
- SEARCH FOR STANDARD NUMBERS
  - NEXT GENERATION SCIENCE STANDARDS

Domain/Reporting Category	Subdomain/Core Idea	Standard/Performance Expectation	Standard Description	TASC Emphasis for Forms JKL
Earth and Space Sciences <i>continued</i>	HS-ESS3 Earth and Human Activity <i>continued</i>	HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.	Medium
Life Sciences	HS-LS1 From Molecules to Organisms: Structures and Processes	HS-LS1-1	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.	High
		HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	High
		HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	High
		HS-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	High
		HS-LS1-5	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	High
		HS-LS1-6	Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.	Low
		HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	High

# PHOTOSYNTHESIS & CELLULAR RESPIRATION ACTIVITY



# PHOTOSYNTHESIS & CELLULAR RESPIRATION...

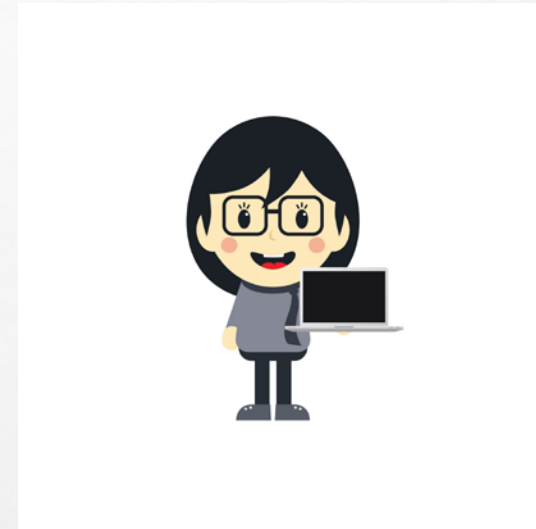
TAKE A FEW MINUTES & THINK ABOUT...

- WHAT DO YOU REMEMBER ABOUT THESE PROCESSES?
- DO YOU REMEMBER LEARNING ABOUT THEM BEFORE?
- WHAT CAN YOU SHARE THAT YOU ALREADY KNOW?

THINK, PAIR, SHARE: *TURN TO A PARTNER AND SHARE*



# COMPUTER ACTIVITY



- WHAT DO YOU NOTICE? WHAT DO YOU WONDER?
- TIME TO REFRESH OUR MEMORY ON PHOTOSYNTHESIS & CELLULAR RESPIRATION
- WORK WITH A PARTNER OR ON YOUR OWN AND DO THE COMPUTER ACTIVITY  
REFLECT: HOW DOES ENERGY PLAY A ROLE IN THESE TWO PROCESSES?

# ACTIVITY EXTENSION...

- TEXTBOOK READING
- ONLINE TEXT READING
- PRACTICE QUIZ: QUIZLET

“The more you **read**  
the more **things** you know.  
The more that you **learn**  
the more **places** you’ll go.”  
-Dr. Seuss

# REFLECTION ON LESSON...

- TEACHER'S REFLECTION
- YOUR LIKES? YOUR DISLIKES?



# LUNCH TIME!

Take a break.

**You deserve it!**



**It's Time For A Break**



# AFTERNOON AGENDA

- LESSON/ACTIVITY 2:HEREDITY AND GENETICS
  - REVIEWING ALLELES
  - UNDERSTANDING DOMINANT AND RECESSIVE TRAITS
  - PUNNETT SQUARES
  - THE MAKING OF A MONSTER
- WRAP UP
  - RESOURCE SHARE
  - CLOSING REMARKS

MY WHAT PRETTY EYES YOU HAVE...

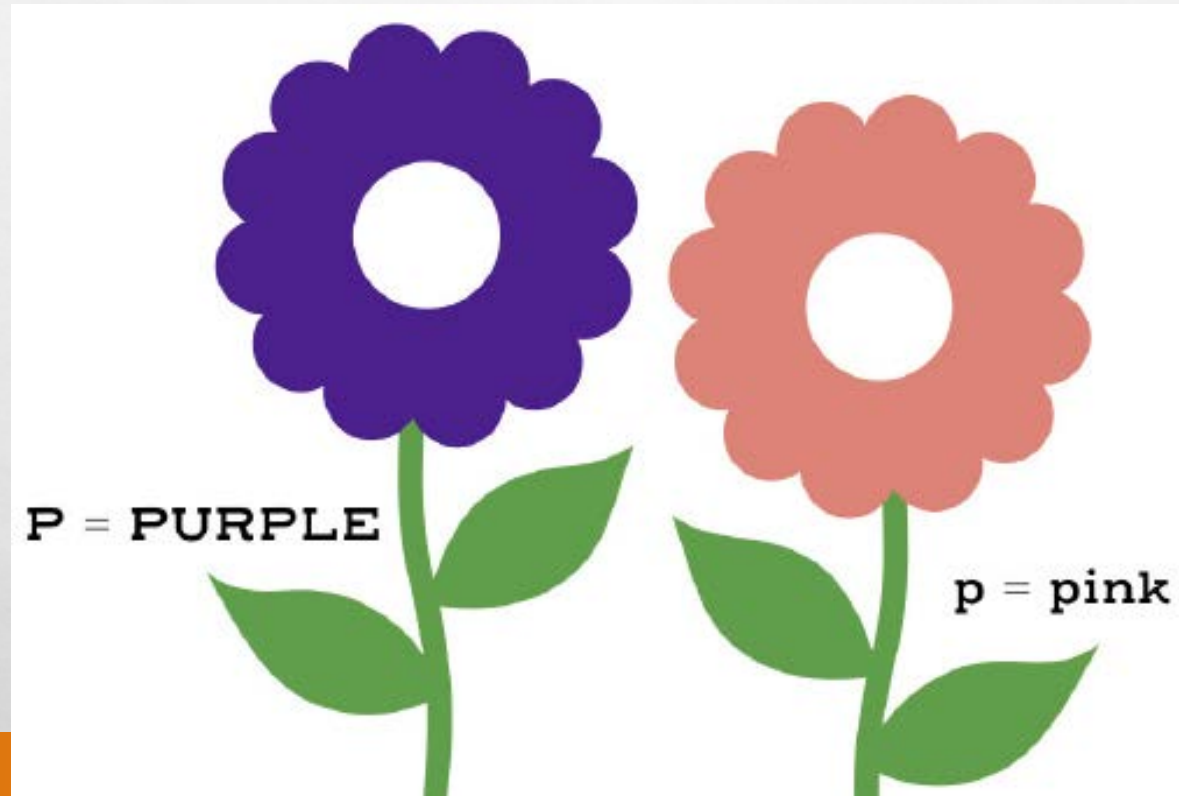


# ALLELE REVIEW

## Mendelian Concepts







- Dominant = only one allele of a gene necessary to express the trait
- Recessive = both alleles of a gene must be identical to express the trait
- Heterozygous = alleles of a particular gene are non-identical
- Homozygous = alleles of a particular gene are identical

# DOMINANT VERSUS RECESSIVE

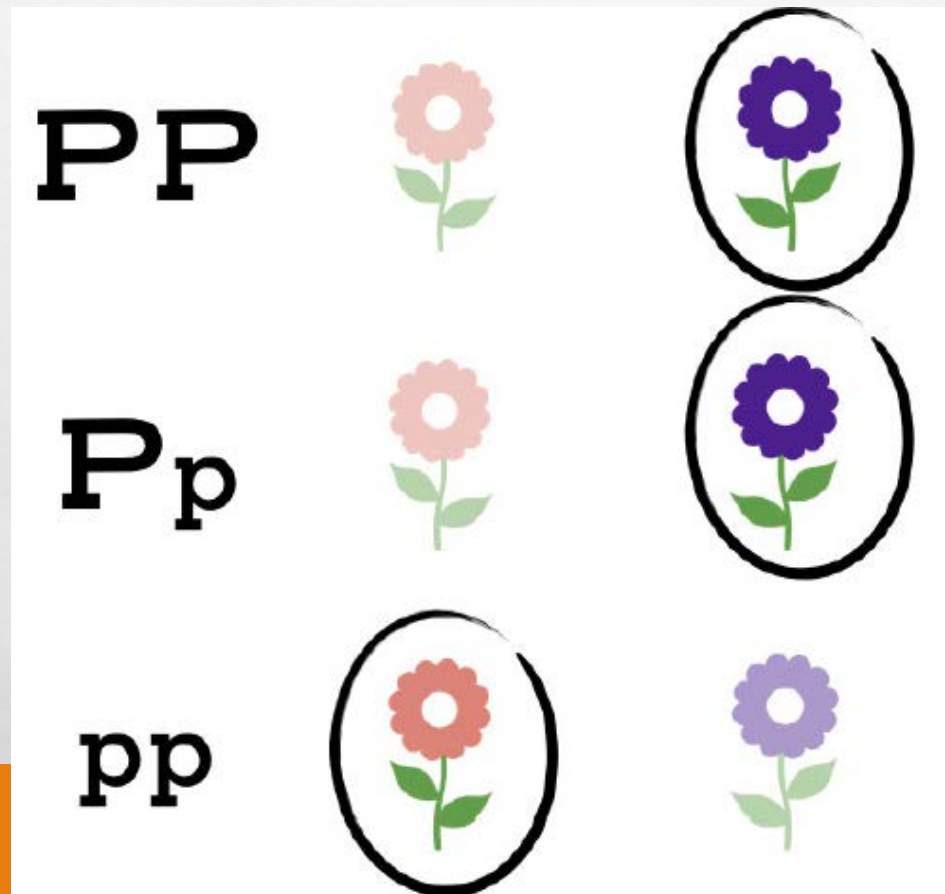




# MATCH THE ALLELES TO THE FLOWERS

<b>PP</b>		or		?
<b>Pp</b>		or		?
<b>pp</b>		or		?

# ANSWERS

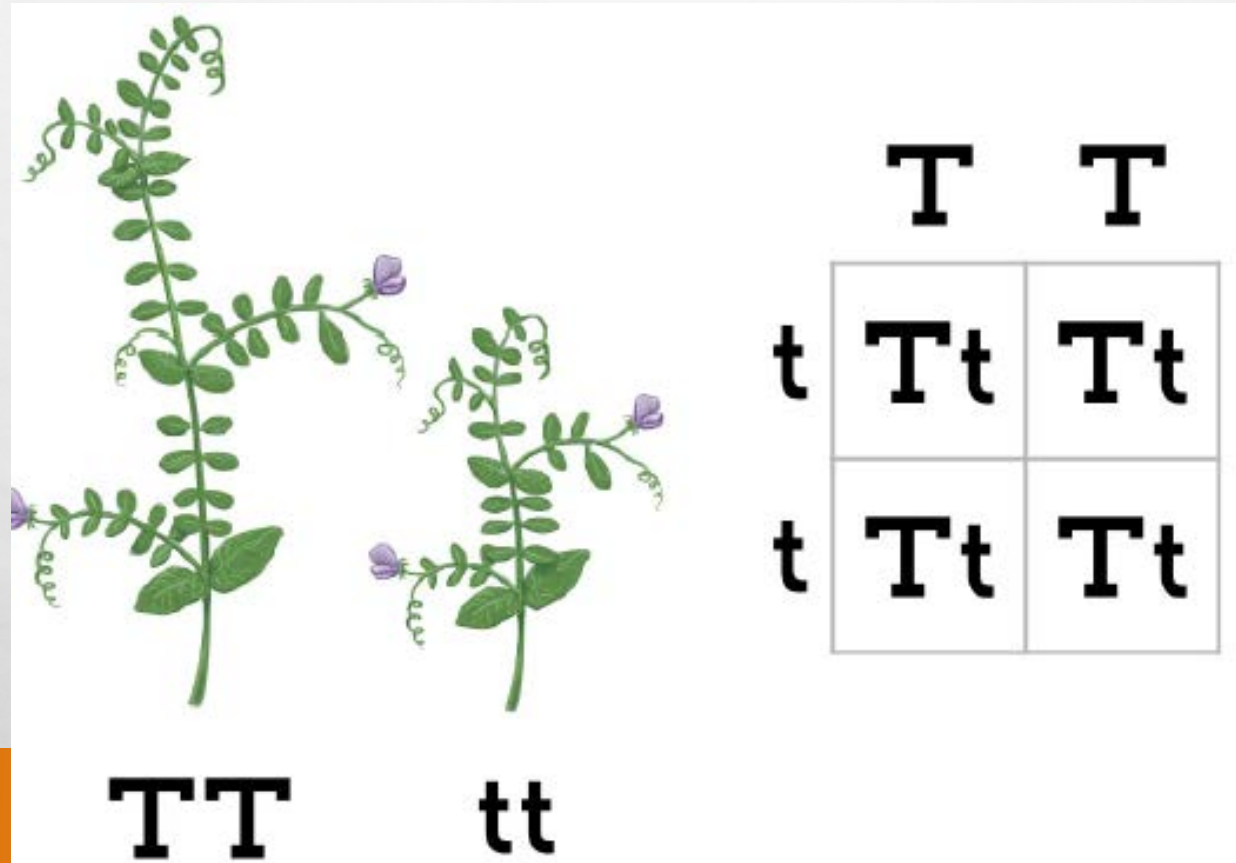




# ... ONE MORE TIME, WITH A TWIST

- WE WANT TO REPEAT THE PREVIOUS EXPERIMENT, BUT THIS TIME...
- WE WANT ONE OF THE ALLELES TO BE 'HOMOGENOUS RECESSIVE'... (WHAT DOES THAT MEAN AGAIN?)
- HOW CAN WE 'ALTER' OUR EXPERIMENT TO REFLECT THE HOMOGENOUS PAIRING?
- LET'S FLIP... LIKE LAST TIME
  - RECORD THE ALLELES
  - MARK THE COLUMN FOR THE FLOWER COLOR REPRESENTED BY THE ALLELES
  - LET'S CHAT...

# LET'S TALK PUNNETT SQUARES...



The diagram illustrates a monohybrid cross of pea plants for the trait of height. On the left, a tall pea plant is labeled **TT**. On the right, a short pea plant is labeled **tt**. To the right of the plants is a Punnett square:

	<b>T</b>	<b>T</b>
<b>t</b>	<b>Tt</b>	<b>Tt</b>
<b>t</b>	<b>Tt</b>	<b>Tt</b>

# MORE PUNNETT SQUARE TALK...

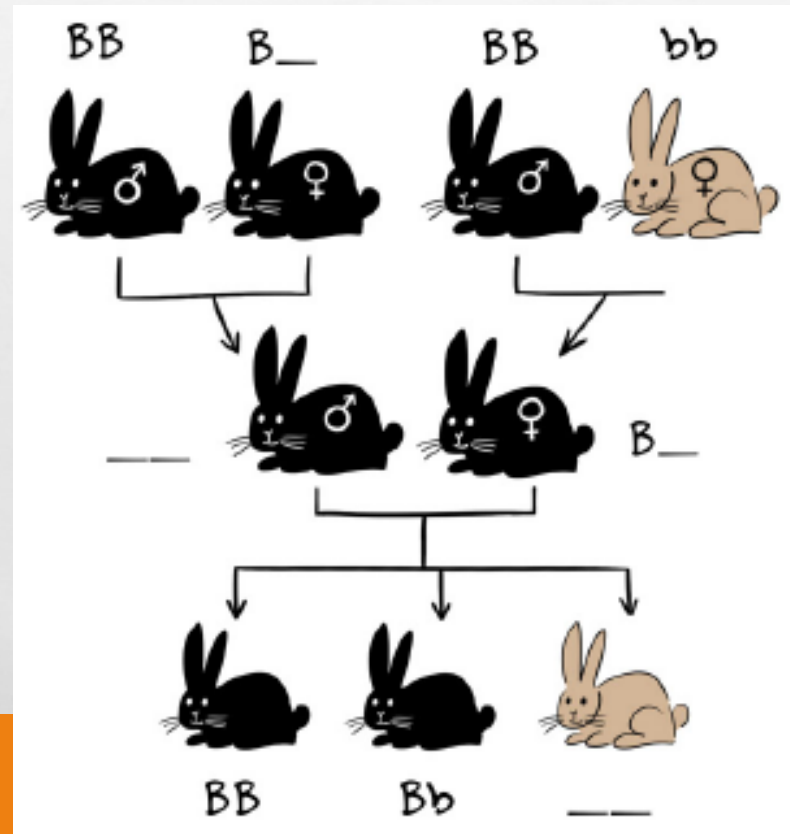
- REMEMBER OUR FIRST TOSS UP EXPERIMENT...
- REMIND ME... WHAT WERE THE ALLELES FOR THE 'PARENTS'
- FILL IN A PUNNETT SQUARE BASED ON THOSE PARENTAL PAIRINGS
- LET'S CHAT
  - BASED ON THE PUNNETT SQUARE, WHAT PERCENT OF THE OFFSPRING WOULD YOU EXPECT TO BE PURPLE? PINK?
  - COMPARE YOUR PUNNETT SQUARE TO YOUR RESULTS FROM EXPERIMENT 1... WHAT DO YOU NOTICE? ANY SURPRISES?

# ENOUGH WITH THE PUNNETT SQUARES ALREADY!!!

- NOW, DRAW THE PUNNETT SQUARE THE REPRESENTS THE PARENTAL PAIRINGS FOR EXPERIMENT 2...
- BASED ON THE PUNNETT SQUARE, WHAT PERCENT OF OFFSPRING WOULD YOU EXPECT TO BE PURPLE? PINK?
- AGAIN, COMPARE THE PUNNETT SQUARE TO YOUR RESULTS... WHAT DO YOU NOTICE? ANYTHING SURPRISE YOU?

# BUNNY TALK...

- BASED ON YOUR NEW FOUND KNOWLEDGE OF ALLELES... FILL IN THE TABLE TO COMPLETE THE ALLELE PAIRS





# MENDEL'S MONSTER FACTORY...



# MENDEL'S MONSTER FACTORY



Probability, just checking:

1. If I flip a coin one time, what is the probability that it will land on heads? \_\_\_\_\_
2. If I flip the same coin again, what is the probability that it will land on heads? \_\_\_\_\_
3. If I flip a coin 10 times, what is the probability that the eleventh time will be heads? \_\_\_\_\_
4. If I flip a coin 4 times, and on the first three flips it landed on heads, what is the probability that the fourth will be heads again? \_\_\_\_\_

# MENDEL'S MONSTER FACTORY



- PAIR UP..

For this activity, we are assuming that both you and your partner are **heterozygous** for all traits. You will flip a coin for each trait. If you flip **heads**, you are passing on the **dominant allele** to your offspring. If you flip **tails**, you are passing on the **recessive allele**. Both of you need to have all the “flips” in your individual sheets.

- FOR EACH TRAIT, YOU AND YOUR PARTNER WILL FLIP YOUR COIN TO DETERMINE THE ALLELE PAIR FOR OFFSPRING 1, AND THEN FLIP AGAIN TO DETERMINE ALLELE PAIR FOR OFFSPRING 2

# MENDEL'S MONSTER FACTORY...



- DESCRIBE YOUR BEAUTIFUL MONSTER BABY TO ME... OR BETTER YET,
- DRAW IT!!!
- YOU AND YOUR PARTNER CHOOSE WHO IS GOING TO DRAW WHICH OFFSPRING, AND SKETCH A DOODLE OF YOUR MONSTER.

# MENDEL'S MONSTER FACTORY



- SINCE EACH OF THE PARENTS HAD HETEROZYGOUS GENOTYPES... WHAT WAS THE PROBABILITY OF EACH OFFSPRING GETTING THE DOMINANT TRAIT? THE RECESSIVE TRAIT?
- DO YOU THINK ANY TWO MONSTER OFFSPRING IN THE ROOM LOOK EXACTLY ALIKE?
- COMPARE YOUR MONSTER SKETCHES WITH OTHERS ...
  - WHAT DO YOU WONDER?
  - WHAT DO YOU NOTICE?
- MOST IMPORTANTLY.....

# MENDEL'S MONSTER FACTORY



- WHAT DID YOU NAME YOUR MONSTER???

# RESOURCE SHARE...

- COLLECTEDNY.ORG: MANY GREAT ACTIVITIES
  - [C.H.O.N. WORKSHEET](#)
  - [TASC SCIENCE PRACTICE TEST QUESTIONS](#)
- PRINT MATERIAL: [POWER BASICS](#)
- WEBSITES
  - [WORD GENERATION](#); [SAMPLE ACTIVITIES](#); [FLYER](#)
  - [BETTER LESSON PLANS!](#); [PHOTOSYNTHESIS LESSON](#)
- WHAT TYPES OF RESOURCES DO YOU USE FOR TEACHING SCIENCE?
- HAVE YOU USED THE [CUNY SCIENCE FRAMEWORKS](#) AS A GUIDE TO YOUR SCIENCE INSTRUCTION?

# WRAP UP...

- WHAT OTHER QUESTIONS DO YOU HAVE REGARDING THE TASC SCIENCE TEST?
- WHAT OTHER QUESTIONS DO YOU HAVE ABOUT TEACHING TASC SCIENCE?
- WHAT 1 THING FROM TODAY WILL YOU BRING BACK TO YOUR CLASSROOM
  
- REMEMBER MORE CC WORKSHOPS AT NYACCE, MONDAY, APRIL 30<sup>TH</sup>... MAKE SURE TO [REGISTER!](#)



# THANK YOU!!!



- IF YOU THINK OF FUTURE QUESTIONS OR CONCERNS, FEEL FREE TO EMAIL US @
  - JENNIFER KENT-ISAACS [JKENTISAACS@CAYBOCES.ORG](mailto:JKENTISAACS@CAYBOCES.ORG)
  - RANDY RAUX [RRAUX@BCCE.MORIC.ORG](mailto:RRAUX@BCCE.MORIC.ORG)
- DON'T FORGET YOUR EVALUATIONS... SAFE TRAVELS!!!