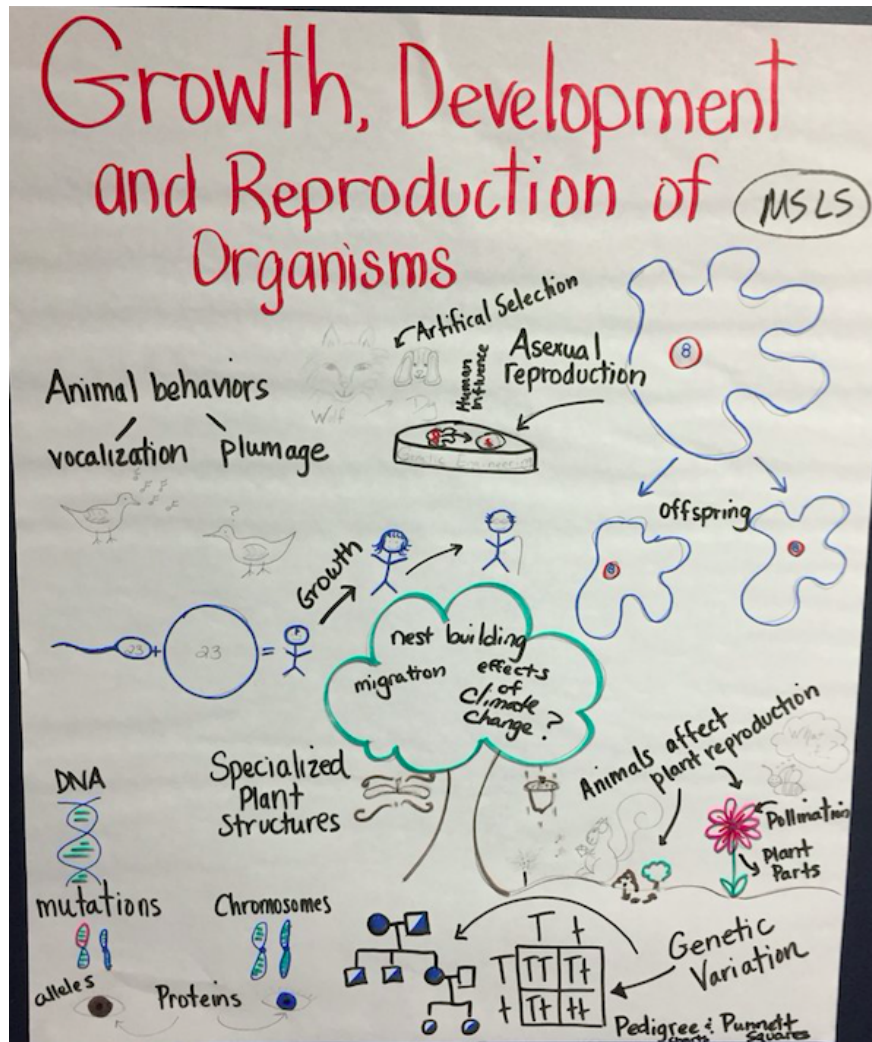


G6 Bundle 2: Genetics, Heredity & Growth

Understanding by Design (UbD) Template*

Unit	Reproduction and Growth	Course(s)	Grade 6
Designed by	Penny Bennett	Time Frame	

The Cover



Stage 1: Desired Results

Performance Expectations:



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- MS-LS3-2: Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (Cause and Effect)
- MS-LS1-4: Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. (Cause and Effect)
- MS-LS1-5: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. (Cause and Effect)

The CONFLICT: Anchoring Phenomenon

Anchoring Phenomenon: Why are we so diverse?

MS-LS3-2: Biracial Twins NatGeo Article [or](#) Why are you you?

MS-LS1-4: Plant Diversity video? [Or](#) Death of bees?

MS-LS1-5: GMO related [or](#) [Ice Turns Himalayan Rabbits Black](#)

The MESSAGE: Enduring Understandings

- The diversity of living organisms is driven by environmental and genetic factors.
- Diversity increases our (any living organisms) chance of survival.
- Organisms reproduce to ensure the survival of the population
- Genetic information is passed down from parent to offspring

The BIG IDEA: Essential Questions

- Why are You You?
- How do organisms grow and reproduce?

Knowledge/ Vocabulary

Part 1:

Reproduction

Asexual Reproduction

Sexual Reproduction

Parent

Offspring

Chromosome

DNA

Gene

Allele

Inherit

Heredity

Dominant trait

Recessive trait

Punnett Square



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Genotype

Phenotype

Part 2:

Animal behaviors (e.g. nest building, protecting young from predators)

Animal structures (e.g. colorful plumage in birds)

Plant Behaviors

Plant structures (e.g. flowers, nectar, hard shells on nuts)



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Stage 2: The FEEDBACK - Assessments

- LS3-2: Punnett Squares (assortment of Stem Gauge questions)
- LS1-4: Design a plant (& corresponding pollinator) that can survive on Mars (?)
- LS1-5: Compilation of Stem Gauge assessment questions
- Summative for Unit?:

Stage 3: Learning Plan

The Conflict Phenomenon	The Chapters Learning Performance Each learning performance should include a disciplinary core idea , a science and engineering practice , and a crosscutting concept . Learning performances should build two PEs	The Story Learning Experiences
Inheritance and Variation of Traits		
Biracial Twins	Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.	• Phenomenon: Asking Qs with White Boards, categorize the Qs we have about genetics • CK-12 Reading • Vocab • Vocab sorting and resorting • Pass the Pasta (grandparents-parents-us) • Or Build a Bug https://www.sas.upenn.edu/~trindal/index_files/bug_babies.pdf or • Differentiate advanced: Monster Maker
	DCI 2: Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited.	• BrainPop - Heredity • What is DNA? https://learn.genetics.utah.edu/content/basics/dna/ • Pass the Pasta (grandparents-parents-us) • Or Build a Bug https://www.sas.upenn.edu/~trindal/index_files/bug_babies.pdf or • Differentiate advanced: Monster Maker
	DCI 3: In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one	• Use Punnett Squares to model (develop & use) • Punnett Square Practice: online interactive http://www.mhhe.com/biosci/genbio/virtual_labs/



	acquired from each parent. These versions may be identical or may differ from each other.	
	DCI 1: Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.	- Amoeba Sisters "Asexual" - Brainpop - Asexual - Asexual vs Sexual Venn Diagram - Advantages & Disadvantages (fuse school video: https://www.youtube.com/watch?v=i9zj9V8QWRk) - Practice: interactive asexual v sexual
	Mini-Assessment	Collection of LS3-2 Stem Gauge questions
Plant Pollination and Seed Dispersal		
Plant Diversity Video <i>or</i> Death of Bees	Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.	- Whiteboard Qs: Why such great diversity? - Reading - Vocab
	DC1-2 Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.	
Environmental and Genetic Factors		
	Construct a scientific explanation based on evidence for how environmental and genetic factors influence/affect the growth of organisms.	



*UbD Unit Planner is from Wiggins, Grant and McTighe, Jay. Understanding by Design Guide to Creating High-Quality Units. Alexandria, VA: Association for Supervision and Curriculum Development. 2011.



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