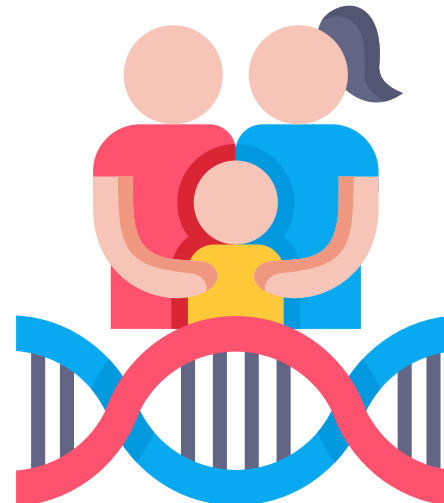
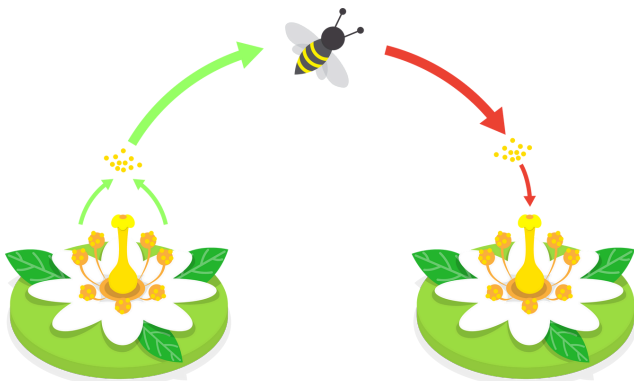


NGSS MS-LS3

Heredity: Inheritance and Variation of Traits

Full Standard BUNDLE

- ✓ Everything You Need to Teach NGSS MS-LS3
- ✓ Lessons, Activities, Labs, and more
- ✓ MS-LS3-1, LS3-2



Bundles Included

NGSS MS-LS3-1

Curriculum Bundle

Genetic Mutations & Their Effect on Proteins

- ✓ 1 Lesson and 4 Activities
- ✓ Everything You Need to Teach NGSS MS-LS3-1



NGSS MS-LS3-2

Curriculum Bundle

Asexual vs. Sexual Reproduction

- ✓ 2 Lessons and 4 Activities
- ✓ Everything You Need to Teach NGSS MS-LS3-2



Everything You Need to Completely Cover NGSS MS-LS3

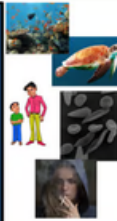
Complete Lessons

Activities

Labs

DNA, Genes, and Mutations

- What DNA and chromosomes are
- What genes are Common genetic features
- What proteins are
- How does changing DNA change proteins
- Mutations - what they are and what causes them
- Mutations - harmful, beneficial, or neutral effects
- Sickle cell anemia



TWF

How Traits Are Passed On: Asexual vs Sexual Reproduction

6th, 7th, 8th Grade Lesson

- ✓ How Traits are Passed On: Sexual and Asexual Reproduction
- ✓ Student + Teacher Versions - Office, Google, and PDF Versions
- ✓ Multimedia-Rich Lesson with No Prep Required



Teach With A Pencil

Plant Reproduction Lesson

6th, 7th, 8th Grade

- ✓ Intro to Plant Reproduction: Sexual and Asexual Reproduction
- ✓ Student + Teacher Versions
- ✓ Multimedia-Rich Lesson with No Prep Required



Teach With A Pencil

Gregor Mendel Scientific Reading Comprehension Article



Improve your students' Scientific Literacy & Analysis Skills, use as an Emergency Substitute Plan or create Applicability in your classroom

Asexual and Sexual Reproduction

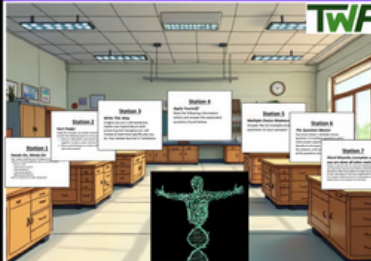
NGSS-MS-LS3-2 Station Activity



TWF

Mutations and Inheritance of Traits

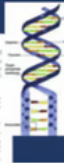
NGSS-MS-LS3-1 Station Activity



TWF

DNA Paternity Tests

Scientific Reading Comprehension Article and Extension Activity



Improve your students' Literacy and Analysis Skills, use as an Emergency Substitute Plan, or create Applicability in your classroom

Create-a-Creature Reproduction Models

Learning Objectives: Students create and use a model to illustrate how sexual reproduction results in genetic variation, with asexual reproduction creating clones.

Objective: Students will model both asexual and sexual reproduction to compare genetic outcomes.

Materials:

- Colored pencils or markers
- A coin (for sexual reproduction chance)
- Trait card (provided below)

Instructions:

Part 1 - Asexual Reproduction (Cloning)

1. Draw a "parent creature" and assign it the following traits:
 - Skin color (dark or light)
 - Body color (red or yellow)
 - Number of legs (2 or 4)
 - Tail (yes or no)
2. Draw a smaller offspring creature as a genetic copy of the parent (same traits).

Part 2 - Sexual Reproduction

1. Use the trait cards below to assign traits from two parent creatures.
2. Flip a coin to decide which trait is inherited from which parent.
 - Heads = Parent A's trait
 - Tails = Parent B's trait
3. Draw the new creature with the mixed traits.

Trait	Parent A	Parent B
Skin Color	Blue	Green
Body Color	Red	Yellow
Number of Legs	2	4
Tail	Yes	No

Wrap-Up Questions:

1. What are the key differences between the asexual and sexual offspring?
2. Which offspring showed more variation? Why?
3. Why might variation be helpful for survival?

Punnett Square Practice: Traits in Action

Objective: Use Punnett squares to model how traits are inherited in sexual reproduction and compared with asexual reproduction.

Materials:

- Head
- Punnett square worksheet
- Trait descriptions

Scenario:

In a species of alien creature:

- Green skin (G) is dominant over purple skin (g). If a parent, they will have green skin. The only way to have purple skin is to be homozygous recessive (gg).
- Two antennae (A) is dominant over one antenna (a).

Parent Genotypes (Sexual Reproduction):

- Parent 1: GgAa
- Parent 2: GgAa

Instructions:

1. Complete Punnett squares for each trait:
 - Skin color (Gg x Gg)
 - Antenna number (Aa x Aa)
2. Record the possible genotype combinations (e.g., GG, Gg, gg, AA, Aa, and aa) and phenotype percentages (how many will have green skin, etc.).
3. Compare these results to a parent's parent with genotype GgAa.
 - What would the offspring look like in sexual reproduction?

Wrap-Up Questions:

1. How many possible combinations were there in sexual reproduction?
2. What is the outcome for asexual reproduction?
3. Which type of reproduction shows more variation?

High School Biology 2.0

#37: Genetic Mutations: Is Drinking Milk a Super Power?

- ✓ Classroom Ready - Just Print and Go!
- ✓ Active Engagement - Keep Students' Attention
- ✓ Direct Video Link Included

WATCH VIDEO



Includes Student Copy and Answer Keys

Teach With A Pencil

The Standard is Explained and the Resources it Incorporates are Outlined

MS LS3 Heredity: Inheritance and Variation of Traits

MS LS3-1: Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Emphasis is on conceptual understanding that changes in genetic material may result in making different proteins.

Assessment Boundary: Assessment does not include specific changes at the molecular level, mechanisms for protein synthesis, or specific types of mutations.

Resources:

- DNA Genes and Mutations Lesson
- Mutations and Inheritance of Traits - Station Activity
- DNA Paternity Tests Reading
- Gregor Mendel - Reading
- Crash Course Video Worksheet How Genes Express Themselves

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. [Clarification Statement: Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause-and-effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation.]

Resources:

- How Traits Are Passed On — Asexual vs Sexual Reproduction Lesson
- Punnett Square Practice Traits in Action - Activity
- Create-a-Creature Reproduction Models – Activity
- Bill Nye Vide Worksheet - GENES
- Asexual and Sexual Reproduction Station Activity
- Crash Course Biology 47 Sexual and Asexual Reproduction
- Plant Reproduction Lesson
- Plant Reproduction - Scavenger Hunt

Who is this Bundle for?

- **Teachers who teach Middle School Science and use the NGSS**
- **Teachers who want multiple resources at their fingertips including lessons and a variety of activities, in order to meet the standard**
- **Teachers who don't have time to develop their own resources or organize what to teach and when**