

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section: \_\_\_\_\_

## Reproductive Isolation Activity

### Nature's Amazing Species Factory!

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#### Phase 1: ENGAGE (5 minutes)

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**Getting Started:** Open peebedu.com and navigate to Natural Selection and Speciation Simulation

**First Impressions:** Look at the creatures! What do you notice? \_\_\_\_\_

- They have different: \_\_\_\_\_ (hint: black to white)

Press some buttons and explore:

- What can you change? \_\_\_\_\_

**Big Question:** How do you think wolves became dogs AND coyotes?

**Fun Fact:** It took thousands of years for wolves to become different species! →

## Phase 2: EXPLORE (18 minutes)

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### Adventure 1: Predator Attack!

Let's see what happens when predators hunt certain colors:

Setup:

- Start with 100 creatures
- Make them medium gray (128)
- Add a predator that likes to eat BLACK creatures

**Before & After:** Draw what you see:

Start: After 30 Generations: \_\_\_\_\_ “ [Box with mixed [Box with your creatures] observation] “

Count the creatures:

• \_\_\_\_\_

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\_\_\_\_\_ Circles date circles, Squares date squares

Circles date squares, Squares date circles

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**Coolest finding:** \_\_\_\_\_

## Phase 3: EXPLAIN (12 minutes)

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### How Nature Makes New Species

#### The Selection Game:

Fill in what happens:

- Creatures are born → Some are \_\_\_\_\_

- Survivors have babies → Babies look like \_\_\_\_\_

#### The Species Recipe:

Ingredients for making new species:

#### Real-Life Examples:

Draw lines to match: \_\_\_\_\_ “ Polar bears & Brown bears • • Color differences Galapagos finches •  
• Geographic separation Firefly species • • Different beak shapes Peacocks • • Mating displays “

#### Why Can't They Mix?

Set 'Max Color Diff for Mating' to 30

- Light creature (200) + Dark creature (50) = ? \_\_\_\_\_

- Can mate? Yes / No

It's like speaking different languages!

## Phase 4: ELABORATE (8 minutes)

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### You're the Scientist!

#### Predict the Future:

Brown beetles live in a forest. The trees turn white from pollution.

- What will happen? .....
- Draw the beetle population:

Now: Future: ..... [Box] [Box]

#### Design Your Own:

Create conditions for fastest evolution:

- Population size: Small / Large (circle one)
- Predator: Yes / No

- Background: .....

#### Human Impact:

How do humans accidentally create new species? .....

- Building highways: .....

- Pollution: .....

## Phase 4: EVALUATE (7 minutes)

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### Show What You Know!

**Order the Steps:** (Number 1-4) \_\_\_ Groups can't have babies together \_\_\_ Original population varies \_\_\_ Environment favors certain traits \_\_\_ Populations separate

1.

### Fill in the Story:

Once there was a population of gray \_\_\_\_\_. A river formed and split them. On the dark side, \_\_\_\_\_ creatures survived better. On the light side, \_\_\_\_\_ creatures survived better. After many \_\_\_\_\_, they became two different \_\_\_\_\_!

### Math Connection:

Population starts with 100 creatures (50 light, 50 dark) Predator eats 80% of dark creatures each generation

After 1 generation:

- Light creatures: ~50
- Dark creatures: ~10

### Big Thinking:

Why do islands have weird animals found nowhere else?

### Exit Ticket:

Draw an emoji for how you feel about evolution:

- Mind blown!
- Got it!
- Still thinking
- Confused

Coollest thing I learned: \_\_\_\_\_

Question I have: \_\_\_\_\_

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### Cool Facts!

- Dogs evolved from wolves in just 15,000 years!
- The Galápagos has 18 different finch species from one ancestor
- Polar bears and grizzly bears split 150,000 years ago
- Some fish species formed in just 100 years!
- Humans are still evolving too!

### Key Vocabulary

See activity for vocabulary specific to this topic.