

# Color-Mixing Challenge Lab Sheet

## Days 2-3: Explore Station Rotations

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

Group Number: \_\_\_\_\_ Station Rotation Order: 1 → 2 → 3

### Objective

To use precise micropipette measurements to mix colors and discover how primary colors combine to create secondary colors.

### Safety & Precision Review

#### Micropipette Safety Rules (Remember from Day 1!)

- ☐ Never force the plunger
- ☐ Keep micropipette tips clean and dry
- ☐ Handle the micropipette carefully—it's a delicate tool
- ☐ Return the micropipette to its stand when not in use

#### What Does "Precision" Mean?

**Precision** = Using exact amounts to get consistent, predictable results. When we measure exactly 10  $\mu\text{L}$  instead of guessing, we can predict what will happen!

### Stations Overview

You will rotate through **three color-mixing stations**. At each station, you will:

1. **Predict** what color you think will form
2. **Measure** exactly 10  $\mu\text{L}$  of each color using a micropipette
3. **Mix** the colors together
4. **Observe** what actually happens
5. **Record** your observations

**Station 1:** Red + Yellow → Orange

**Station 2:** Blue + Yellow → Green

**Station 3:** Red + Blue → Purple

### Station 1: Red + Yellow → Orange

#### Before Mixing:

What color do you predict will result when you mix red and yellow?

Draw or describe your prediction:

#### Measurements:

- Red food coloring: 10  $\mu\text{L}$
- Yellow food coloring: 10  $\mu\text{L}$

#### After Mixing:

What color did you actually get? Draw or describe it:

**Accuracy Check:**

Did your prediction match the result?   ☐ Yes   ☐ No

Why or why not?

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**Observations:**

What did you notice about the mixing process? Did anything surprise you?

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## Station 2: Blue + Yellow → Green

**Before Mixing:**

What color do you predict will result when you mix blue and yellow?

Draw or describe your prediction:

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**Measurements:**

- Blue food coloring: 10  $\mu$ L
- Yellow food coloring: 10  $\mu$ L

**After Mixing:**

What color did you actually get? Draw or describe it:

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**Accuracy Check:**

Did your prediction match the result?   ☐ Yes   ☐ No

Why or why not?

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**Observations:**

What did you notice about the mixing process? Did anything surprise you?

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## Station 3: Red + Blue → Purple

**Before Mixing:**

What color do you predict will result when you mix red and blue?

Draw or describe your prediction:

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**Measurements:**

- Red food coloring: 10  $\mu$ L
- Blue food coloring: 10  $\mu$ L

**After Mixing:**

What color did you actually get? Draw or describe it:

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**Accuracy Check:**

Did your prediction match the result?   ☐ Yes   ☐ No

Why or why not?

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**Observations:**

What did you notice about the mixing process? Did anything surprise you?

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# Data Comparison Table

Fill in this table to compare all three stations:

| Station / Colors Mixed   | Predicted Color | Actual Color | Match? (Yes/No) | Notes on Consistency |
|--------------------------|-----------------|--------------|-----------------|----------------------|
| Station 1: Red + Yellow  |                 |              |                 |                      |
| Station 2: Blue + Yellow |                 |              |                 |                      |
| Station 3: Red + Blue    |                 |              |                 |                      |

## Reflection & Analysis

1. Were your results consistent across all three stations? Why or why not?

2. What would have happened if you guessed the amounts instead of using a micropipette?

3. Why is precision important in color mixing?

4. How does using exact measurements help us predict outcomes?

## Challenge Question

Why did we use micropipettes instead of pouring? What would have happened if we guessed the amounts? Explain your thinking:

## Connection to Learning

How does this activity show us why scientists use precise tools and measurements?

Excellent work investigating color mixing! You're thinking like a scientist! 🌈🔬