**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1/2

**Slide Preparation Lab**

**Identify what types of slides you will be creating (IV):** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Identify how you will compare the views (DV):** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Write a Problem and Hypothesis using the model below.*

**Problem:** How does the \_\_IV\_\_ change the views under a microscope?

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**Hypothesis:** If the \_\_IV\_\_ is changed, then the \_\_level of IV\_\_ will have the best view because \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Procedures:** *Follow the Procedures listed below.*

**Materials:** MicroscopePaper “e”

Slides with coverslip Cotton fibers

Blue dye Water

**Steps:**

1. **Viewing a Slide**
	1. Cut out an “e” and mount it on a slide.
	2. Focus the slide first with the scanning objective, and adjust the “e” to be in the middle of the view.
	3. Then click to low power and focus again. Once you have a clear view move the “e” to the center of your view.
	4. Finally, focus the slide under high power. Only use the fine adjustment under high power.
	5. Draw the “e” exactly as it appears in your field of view at each magnification. The circles represent your field of view, and the “e” should take up as much space in the drawing as it does in the microscope field of view.
2. **Making a Wet Mount**
	1. Tear off a few fibers of cotton from a cotton ball.
	2. Place the strands of cotton on a slide, and view the dry mount.
	3. Place 3 drops of water on the strands of cotton.
	4. Slide the coverslip at a 45˚ angle to the water’s edge, and then slowly lower it until the coverslip is on the slide.
	5. Look at the cotton strand slide under the microscope and draw what you see at each power.
3. **Staining a Specimen**
	1. Use the slide prepared for the wet mount. Place a drop of iodine at the edge of the coverslip.
	2. Place a piece of paper towel on the opposite side of the coverslip, and “draw” the iodine under the coverslip until it is under the entire coverslip.
	3. Look at the stained cotton strands under the microscope at each power, and draw what you see.

**Data:** *Draw a picture of what you see at each view for each “specimen”.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Scanning** | **Low Power** | **High Power** |
| **“e”** |  |  |  |
| **Cotton wet mount** |  |  |  |
| **Cotton with dye** |  |  |  |

**When you finish looking at the “e” and cotton begin looking at the 5 specimens you collected in the notecard. Draw what you see at each level of magnification.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Scanning** | **Low Power** | **High Power** |
| **Object 1** |  |  |  |
| **Object 2** |  |  |  |
| **Object 3** |  |  |  |
| **Object 4** |  |  |  |
| **Object 5** |  |  |  |

**Analysis:** *Answer each of the following questions using the data*.

1. Which of the slides was the most clear?
2. How did adding water for a wet mount change what the slide looked like?
3. How did adding a stain change the view under the microscope?
4. Which magnification power showed the greatest detail? Did the detail change as the slides were prepared differently?
5. Which view through the microscope provided the best detail?

**Conclusion:** *Answer each of the questions.*

1. How does the water used on a wet mount changes the view from what is seen with a dry mount?
2. Why is the stain drawn across the specimen, under the coverslip?
3. Why is the most detail seen on the highest magnification when the cotton is stained? What increases the detail seen?
4. How will the staining technique and viewing at high power effect what you see in actual cells on future labs?

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

3/4

**Slide Preparation Lab**

**Identify the IV:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Identify the DV:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Write a Problem and Hypothesis.*

**Problem:** Use the IV to identify what you are testing.

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**Hypothesis:** Write an If, then statement using the IV and DV.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Procedures:** *Follow the Procedures listed below.*

**Materials:** MicroscopePaper “e”

Slides with coverslip Cotton fibers

Blue dye Water

**Steps:**

1. **Viewing a Slide**
2. Cut out an “e” and mount it on a slide.
3. Focus the slide first with the scanning objective, and adjust the “e” to be in the middle of the view.
4. Then click to low power and focus again. Once you have a clear view move the “e” to the center of your view.
5. Finally, focus the slide under high power. Only use the fine adjustment under high power.
6. Draw the “e” exactly as it appears in your field of view at each magnification. The circles represent your field of view, and the “e” should take up as much space in the drawing as it does in the microscope field of view.

**2. Making a Wet Mount**

1. Tear off a few fibers of cotton from a cotton ball.
2. Place the strands of cotton on a slide, and view the dry mount.
3. Place 3 drops of water on the strands of cotton.
4. Slide the coverslip at a 45˚ angle to the water’s edge, and then slowly lower it until the coverslip is on the slide.
5. Look at the cotton strand slide under the microscope and draw what you see at each power.

3. **Staining a Specimen**

1. Use the slide prepared for the wet mount. Place a drop of iodine at the edge of the coverslip.
2. Place a piece of paper towel on the opposite side of the coverslip, and “draw” the iodine under the coverslip until it is under the entire coverslip.
3. Look at the stained cotton strands under the microscope at each power, and draw what you see.

**Data:** *Draw a picture of what you see at each view for each “specimen”.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Scanning** | **Low Power** | **High Power** |
| **“e”** |  |  |  |
| **Cotton wet mount** |  |  |  |
| **Cotton with dye** |  |  |  |

**When you finish looking at the “e” and cotton begin looking at the 5 specimens you collected in the notecard. Draw what you see at each level of magnification.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Scanning** | **Low Power** | **High Power** |
| **Object 1** |  |  |  |
| **Object 2** |  |  |  |
| **Object 3** |  |  |  |
| **Object 4** |  |  |  |
| **Object 5** |  |  |  |

**Analysis:** *Answer each of the following questions using the data*.

1. Which of the slides was the most clear and why?
2. How was adding water like adding another lens to the microscope?
3. What did stain change about the object?
4. Which magnification power showed the greatest detail? Compare the views at each magnification?
5. Which view through the microscope provided the best detail?

**Conclusion:** *Answer each of the questions.*

1. Why was the change in views significant from the dry to the wet mount?
2. Explain why stain would be drawn across a specimen, under the coverslip.
3. Compare and contrast the three views of the stained cotton. What increases the detail seen?
4. How will these techniques influence what you see in future labs?

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

5/6

**Slide Preparation Lab**

**IV:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DV:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Write a Problem and Hypothesis.*

**Problem:** Write a problem about using microscopes.

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**Hypothesis:** Write an If, then statement using the IV and DV.

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**Procedures:** *Follow the Procedures listed below.*

**Materials:** MicroscopePaper “e”

Slides with coverslip Cotton fibers

Blue dye Water

**Steps:**

1. **Viewing a Slide**
2. Cut out an “e” and mount it on a slide.
3. Focus the slide first with the scanning objective, and adjust the “e” to be in the middle of the view.
4. Then click to low power and focus again. Once you have a clear view move the “e” to the center of your view.
5. Finally, focus the slide under high power. Only use the fine adjustment under high power.
6. Draw the “e” exactly as it appears in your field of view at each magnification. The circles represent your field of view, and the “e” should take up as much space in the drawing as it does in the microscope field of view.

**2. Making a Wet Mount**

1. Tear off a few fibers of cotton from a cotton ball.
2. Place the strands of cotton on a slide, and view the dry mount.
3. Place 3 drops of water on the strands of cotton.
4. Slide the coverslip at a 45˚ angle to the water’s edge, and then slowly lower it until the coverslip is on the slide.
5. Look at the cotton strand slide under the microscope and draw what you see at each power.

**3. Staining a Specimen**

1. Use the slide prepared for the wet mount. Place a drop of iodine at the edge of the coverslip.
	1. Place a piece of paper towel on the opposite side of the coverslip, and “draw” the iodine under the coverslip until it is under the entire coverslip.
	2. Look at the stained cotton strands under the microscope at each power, and draw what you see.

**Data:** *Draw a picture of what you see at each view for each “specimen”.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Scanning** | **Low Power** | **High Power** |
| **“e”** |  |  |  |
| **Cotton wet mount** |  |  |  |
| **Cotton with dye** |  |  |  |

**When you finish looking at the “e” and cotton begin looking at the 5 specimens you collected in the notecard. Draw what you see at each level of magnification.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Scanning** | **Low Power** | **High Power** |
| **Object 1** |  |  |  |
| **Object 2** |  |  |  |
| **Object 3** |  |  |  |
| **Object 4** |  |  |  |
| **Object 5** |  |  |  |

**Analysis:** *Answer each of the following questions using the data*.

1. Which of the slides was the most clear and why?
2. How would you increase magnification slightly with the supplies provided?
3. Evaluate how stains affect the views of specimens.
4. What happens with more magnification? Explain the change in views and what changes about the view.
5. How would you describe the best view for clarity and magnification.

**Conclusion:** *Answer each of the questions.*

1. What is the biggest change in views from a dry to a wet mount.
2. Create a technique for staining specimens.
3. What would you predict a magnification of 500 x would look like based on the three views of the stained cotton? Why would it look like that?
4. Would you change any techniques about using the microscope or preparing slides? How would you improve directions for using the microscope for future labs?

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