

# Designing the CELL CYCLE

## ESSENTIAL QUESTIONS

What structures do you look at to determine the stage of the cell in the cell cycle?

What structures are appearing and changing in the cell during each phase of the cell cycle?

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## STANDARDS

### Biology Standard

SC.912.L.16.14—Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.

### Visual Arts Standard

VA.912.S.2.6—Incorporate skills, concepts, and media to create images from ideation to resolution.

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## PROJECT PROMPT

Working in groups of three, students will work collaboratively to design and create six unique prints illustrating the six stages of the cell cycle: interphase, prophase, metaphase, anaphase, telophase and cytokinesis. Groups will present their final designs with each member of the group responsible for presenting on their prints for two of the six cell cycle stages. During the group presentation it is important to explain what is happening during each stage in the cell cycle and how that influenced the print design.

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## MATERIALS

(6) Styrofoam Printmaking Sheet (or use Styrofoam plates/take out containers)

(6) Heavy Cardstock or Mixed Media Paper (durable/heavy paper to use for prints)

Etching Tool (pencil, pen, etc.—used to carve into the Styrofoam)

Printmaking Ink/Paint/Markers (materials will depend on technique used)

Brayer/Roller (use with printmaking ink/paint)

Plexiglass/Plate (needed for brayer—this will help evenly distribute the paint/ink on the roller)

Spoon (or similar smooth, hard surface for transferring the ink from the plate to paper)

## Student Checklist:

- Complete all flipped classroom documents, including preliminary sketch worksheet.
- Work with group members to share and revise initial design sketches in order to develop a plan for final printmaking project.
- Present final design project to class. Each group member will present their prints for two parts of the cell cycle, and will be able to explain what happens to the cell during that stage and how that information influenced their design choices.
- Complete the student reflection rubric and turn in with all other required documents and final project.



# FLIPPED *Arts* INSTRUCTION

Select at least one link in each of the following columns to review.

Make sure to record new vocabulary, key points and any questions or insights.

Remember to bring your completed worksheet to class for review with your group, and to turn this in with your final project.

ELEMENTS OF ART: COLOR	ELEMENTS OF ART: LINE	PRINCIPLES OF DESIGN: MOVEMENT	PRINCIPLES OF DESIGN: PATTERN	PRINTMAKING TECHNIQUES
<p><b>Color Theory Quick Reference Poster   Paper Leaf</b>  <a href="https://paper-leaf.com/blog/2010/01/color-theory-quick-reference-poster/">https://paper-leaf.com/blog/2010/01/color-theory-quick-reference-poster/</a></p>	<p><b>Elements of Art: Line   KQED Arts</b>  <a href="https://www.youtube.com/watch?v=BDePyEFT1gQ">https://www.youtube.com/watch?v=BDePyEFT1gQ</a></p>	<p><b>Principles of Design   The J. Paul Getty Museum</b>  <a href="https://www.getty.edu/education/teachers/building_lessons/principles_design.pdf">https://www.getty.edu/education/teachers/building_lessons/principles_design.pdf</a></p>	<p><b>The Principles of Design   Art Heroes</b>  <a href="https://www.youtube.com/watch?v=ZK86XQ1iFVs">https://www.youtube.com/watch?v=ZK86XQ1iFVs</a></p>	<p><b>How to make Styrofoam prints   Mr. Otter Art Studio</b>  <a href="https://www.youtube.com/watch?v=eCjQXse8eB0">https://www.youtube.com/watch?v=eCjQXse8eB0</a></p>
<p><b>Elements of Art: Color   KQED Arts</b>  <a href="http://www.youtube.com/watch?v=wWW_UbrkBEw">www.youtube.com/watch?v=wWW_UbrkBEw</a></p>	<p><b>Elements of Art   The J. Paul Getty Museum</b>  <a href="http://www.getty.edu/education/teachers/building_lessons/formal_analysis.html">http://www.getty.edu/education/teachers/building_lessons/formal_analysis.html</a></p>	<p><b>The Principles of Design   Art Heroes</b>  <a href="https://www.youtube.com/watch?v=ZK86XQ1iFVs">https://www.youtube.com/watch?v=ZK86XQ1iFVs</a></p>	<p><b>Principles of Design— Repetition (pattern)   Kathleen123</b>  <a href="https://sites.google.com/site/principlesofdesignsite/home/repetition-pattern-">https://sites.google.com/site/principlesofdesignsite/home/repetition-pattern-</a></p>	<p><b>DIY: Easy Relief Printmaking   Ruth Bleakley</b>  <a href="http://www.poppytalk.com/2011/11/guest-tutorial-by-ruth-bleakley-this.html">www.poppytalk.com/2011/11/guest-tutorial-by-ruth-bleakley-this.html</a></p>
<p><b>A Brief Lesson on Color Theory   Rhea Lelina Manglapus</b>  <a href="http://www.youtube.com/watch?v=QvbAIVh0Ulc">www.youtube.com/watch?v=QvbAIVh0Ulc</a></p>	<p><b>Element of Art— Line   Rodriguez Art</b>  <a href="http://www.slideshare.net/RodriguezArt/element-of-art-line-14756539">www.slideshare.net/RodriguezArt/element-of-art-line-14756539</a></p>	<p><b>Principles of Design— Rhythm/Movement   Kathleen123</b>  <a href="https://sites.google.com/site/principlesofdesignsite/home/rhythm-movement">https://sites.google.com/site/principlesofdesignsite/home/rhythm-movement</a></p>	<p><b>Principles of Design   The Art of Education</b>  <a href="https://www.theartofed.com/content/uploads/2015/12/The-Principles-of-Art.pdf">https://www.theartofed.com/content/uploads/2015/12/The-Principles-of-Art.pdf</a></p>	<p><b>Styrofoam Printing with Markers   ELLBEE Art Studio</b>  <a href="https://www.youtube.com/watch?v=THhHQQG7oMwU">https://www.youtube.com/watch?v=THhHQQG7oMwU</a></p>

# FLIPPED CLASSROOM WORKSHEET

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

## INSTRUCTIONS:

Select one or more resources from each topic for review. Record new vocabulary, key points and any questions or insights below.

Remember to bring your completed worksheet to class for review with your group.

TOPIC	RESOURCE	NEW VOCABULARY	KEY POINTS	QUESTIONS & INSIGHTS
ELEMENTS OF ART: COLOR				
ELEMENTS OF ART: LINE				
PRINCIPLES OF DESIGN: MOVEMENT				
PRINCIPLES OF DESIGN: PATTERN				
PRINTMAKING TECHNIQUES				



