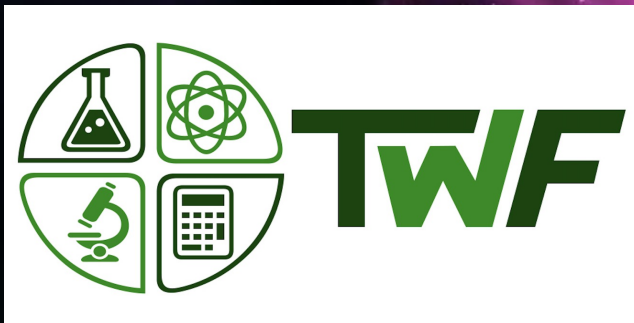


Meiosis

5E Lesson

The 5E model is a scientifically proven method to improve student engagement and learning in your classroom

- ✓ Engagement
- ✓ Exploration
- ✓ Explanation
- ✓ Elaborate
- ✓ Evaluate



Complete Teacher Instructions

Meiosis 5E Lesson

Grades 7-10	Meiosis	Ongoing
Lesson Objective: Students will learn about: • Meiosis • Gametes • Chromosomes • Diploid vs. haploid • Down syndrome • Turner syndrome		
Possible Student Misconceptions: • Paired sister chromatids are the only way to have diploid cells. • Sister chromatids are not joined at centromere. • All four chromosomes of a tetrad are joined at a centromere. • DNA replication occurs in prophase. • Meiosis ends in zygote formation. • Only mammals undergo meiosis.		
Materials: • 1 device (smartphone, Chromebook, laptop, tablet, or computer) • A means of projecting a PowerPoint presentation • Internet access • General classroom objects		
Teacher Notes: ➢ All videos can be accessed directly from the PowerPoint. To retrieve icon while in slideshow mode and it will automatically open for you reason, right-click on the image and click Edit Hyperlink or something similar. I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ ➢ I don't believe in long lessons. If you feel your students are losing interest, stop the PowerPoint and give them a 5-minute break. If you'd like, I recommend my video collection here - http://www.teachwithafire are tons of brain-break videos to choose from all grouped by category.		

Meiosis – 5E Lesson

Engagement Phase Your students will watch the video 'Phases of Meiosis' and complete the following: 1. Watch the video and fill out the worksheet. The video can be found here: https://www.youtube.com/watch?v=7EvtgLLulpo	Duration: Teacher learning & understanding ☐ Connect experience ☐ Create ☐ Ask questions ☐ Understand of the world
Teacher Notes: - The video is about 4 minutes long. - You may need to show the video more than once or pause when an answer is given to one of the questions.	
Exploration Phase Exploration – Lab Station Activity • In groups of 2-3, have your students complete <i>Exploration – Lab Station Activity</i>. Once they're done, they will submit their passport to you.	Duration: Teacher learning & understanding ☐ Student experience ☐ Student creativity ☐ Student observation results connection
Teacher Notes: • The complete instructions for my Lab Station activity can be found in the <i>START HERE – Instructions</i> file.	
Explanation Phase PowerPoint Lessons • The lesson is found in the folder – <i>Explanation – Meiosis Lesson</i> • This lesson is designed to be completed over one day • There are multiple embedded videos and plenty of opportunity to engage, interact and check for your students' understanding throughout the lesson • The lesson covers the following topics: ➢ What is meiosis? ➢ Gametes ➢ Chromosomes ➢ Diploid vs. haploid ➢ Meiosis I ○ Recombination ➢ Meiosis II	Duration: Teacher concepts material presentation ☐ Student understanding content ☐ Observation experience discussion ☐ Student vocabulary ☐ Student connection presentation experience
Teacher Notes: • All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If they don't open, right-click the image and select Edit Hyperlink or something similar. • I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ • I have also enclosed a PDF version of both the teacher and student versions.	

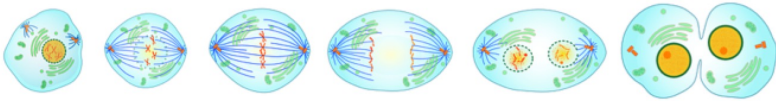
Elaborate Phase Elaborate – Scavenger Hunt Your students will complete – <i>Elaborate – Meiosis Scavenger Hunt</i> . This activity will require your students to move beyond what was covered directly in the lesson and allow them to further develop their understanding.	Duration: 1 hour Teacher Role – Facilitate learning and keep students focused Goal ☐ Students use their newly obtained knowledge to propose solutions and extend their learning to new situations
Teacher Notes: - Students will work individually or in small groups - Students will need one device per group	
Evaluate Phase Quiz Have your students complete – <i>Evaluate – Meiosis Quiz</i>	Duration: 30 min Teacher Role – Distribute and collect evaluation Goal ☐ Students are given the opportunity to demonstrate their understanding and evaluate their own progress
Teacher Notes: ➢ It's sometimes best to have the students peer evaluate ➢ Placing students in small groups and having them exchange papers to mark will accomplish two things 1) Provide immediate feedback on the questions they just completed 2) Significantly reduce your marking time ➢ Peer evaluation is not needed, only suggested when appropriate	

Each phase is clearly described

A Complete Lesson

Meiosis II

- Four phases
 - Prophase II
 - Metaphase II
 - Anaphase II
 - Telophase II and cytokinesis
- **All phases occur in both new cells**



← Make sure your students are on track

Student copies with blanks
Videos embedded right into
your slideshow

Diploid vs. Haploid

- *Diploid*: cells with paired chromosomes (46 total)



- _____



Interactive and Engaging Activities

Device-Based Scavenger Hunt Meiosis

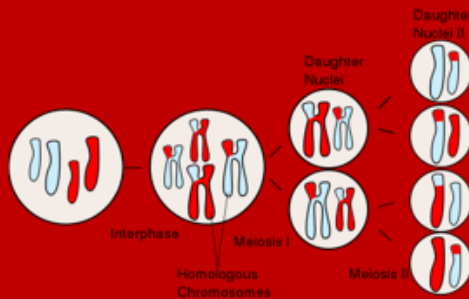
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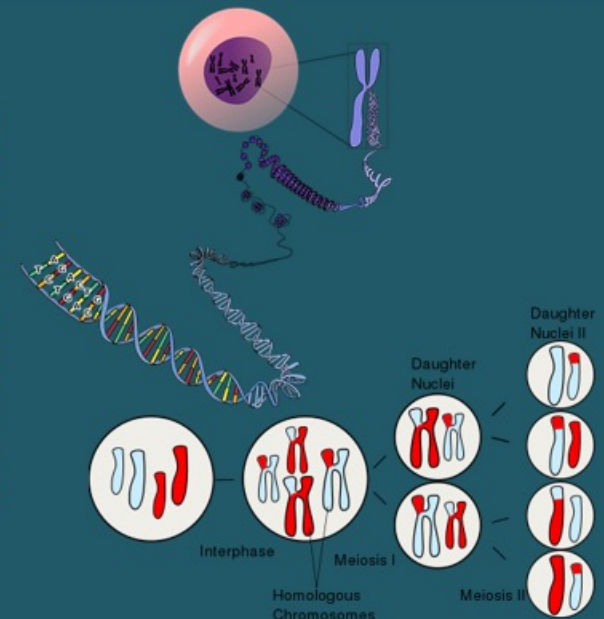
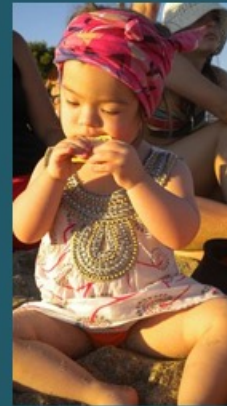
- 5 Unique Locations
- Online form submission
- Answer Key

Works on all smartphones, tablets, Chromebooks, and laptops

- **100% Digital**
- Simulations
- Quizzes
- Videos
- Games
- and more



Meiosis Lab Station Activity

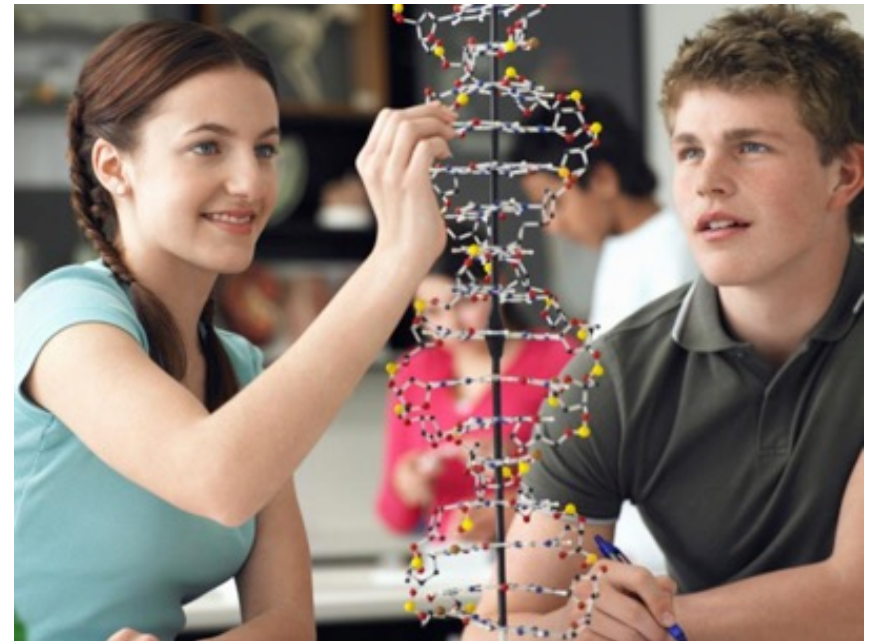


7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Get away from tired practices and unengaged students



Provide a Scientifically-Proven means of instruction



Incorporate Technology and Increase Collaboration

