

Scanning Across the Spectrum Lesson Plan

SIOP Lesson Plan Template

Class & Lesson Information

Date: Day 5 - Wednesday	Grade/Class/Subject: Astronomy - mostly 11 and 12		
Class setting (# of students & MLs, WIDA level if applicable, lesson duration, etc.): 18 Students total 3 MLs - average composite score is about 4 - Given the language skills of my students I feel comfortable giving them the same materials as my native speakers, but they will need more frequent check-ins and supports than other students might not need. 57 minutes per class period			
Grouping explanation: My goal is to have them practice writing a longer coherent piece of text (about three paragraphs) since they have not written more than a sentence at a time so far this week. To help scaffold the data gathering with the software and identifying objects in the pictures, I want them to cooperate in small groups / partners to help with some sense-making. However, I am hoping for the paragraphs they write at the end to be mostly their individual work. I am okay if students work together to scaffold or plan what they want to write though, so while I am going to start this lesson encouraging them to cooperate, I am not going to tell them they need to separate again as they write; so they can ask each other for help.			
whole class Just the bellwork at the beginning of the hour and during instructions time. Students will be mostly small group/pair today and independent.	small group I want students to work together during the data gathering phase of the assignment, to help each other make sense of what they are looking at in each photo.	partners (Similar to Small groups) Also they will be in small groups during the bellwork think-pair-share	independent I want to students to spend some time independently writing their report about what they found at the end of the lesson, however I don't want to discourage them from seeking help from each other so I won't explicitly separate them or tell them they cannot work together to decide what to write.
Unit/Theme: Modern Tools of Astronomy - Light / Spectra	Standards: NA		
Content Objective(s): Understand that different astronomical objects produce different types of light that we can use to identify the objects.			
Language Objective(s): Write a cohesive report of their findings using text and photos to share what they learned.			

Key Vocabulary: Electromagnetic Spectrum Galaxy Wavelength Visible / Optical Infrared Ultraviolet (UV) X-rays Supernova Remnants Stars Dust	Materials (supplementary & adapted): They're are going to work mostly electronically today so they will need: Their electronic handout a Link to the ESASky website Their laptop
Higher-order questions/tasks: (Mid high) They'll be asked to summarize their findings and then to compare and contrast the two galaxies of study for today.	

Lesson Sequence (Pre-/Opening activities):

Time allotted	Activities (Teacher talk, action, etc.)	Other notes
~5 min	Bellwork (<i>Think-Pair-Share</i>) Students will be asked in their small groups to try and answer the following to get them thinking about different parts of the EM spectrum as review. <i>Can you fill in this blank ElectroMagnetic Spectrum with the correct types of light from High Energy to Low Energy waves?</i> I am assuming they will need to work in small groups to fill it completely in, and this will start a discussion about different types of light and how they have different amounts of Energy that correspond to the Energy level of the objects that made them. We talked about light, energy, and the EM spectrum about a week ago so this is technically review.	
~3 min	Review the Daily Objectives with an effort to point out how they will be investigating different types of light and how a key take away is that different objects glow in different types of light. Also the hammer home part of the goal for today is to practice their writing skills so they will be deliberately asked to write paragraphs and that is a necessary part of today's learning plan.	

Lesson Sequence (Main activities):

Time allotted	Activities (Teacher talk, action, etc.)	Other notes
~5 min	Modelling the Assignment and Defining Terminology and Key Terms - At this moment, I will take about 5 min to model how to find, use, and screenshot the software for the task. Additionally, since we have not talked about galaxies much, I will create labelled drawings on the board to give students vocabulary and locations for them to use to describe what they see today. While I am confident that students will be able to communicate what they notice, a shared terminology for different parts of the galaxies will make it easier for them to understand me, each other, and process what they are seeing in the images. At this point, I'll also breakdown the tasks collecting data and explain the expectations for the paragraphs they will write with their data.	This time is important for modelling how to use the online tool in order to make sure students can complete the task and access the data I'm asking them to collect. It is also important to explain the meaning of key words and helping them decode the table in their document. All these things take a bit of time, but they help all students complete the task and understand what and how they are learning. So it should help them be more independent, letting me focus on individuals who are the most stuck and need help.
~35 min	Time to work on the Scanning Across the Spectrum Assignment - Students will have some time to collect data, and then construct three paragraphs summarizing what they found throughout today. While students work individually or in their small groups, I will be constantly rotating around the room to check in with each student (at least once). I'll make sure they are picking up on the key details as part of the goal for today, and I'll help students see the kind of observations they need to make. Students may need feedback in order to be sure they are not missing either the goal for the lesson or other small details.	

Lesson Sequence (Post-activities):

Time allotted	Activities (Teacher talk, action, etc.)	Other notes

~7 min	Post-Assignment Share out - I will ask students to pair with a student across the room, and then share their observations for the differences between the young and old galaxies. I'll tell students they can either read their observations or their third paragraph. After both have shared, I will ask students to raise their hand and share something their partner said that they agreed with or thought was an interesting observation. So it's kind of a Pair-Think-Share, but without them reading their whole paragraph to the class and instead interpreting what their partners said, forcing students to listen and use their comprehension skills.	
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