RAMPED – Summer 2016

Easy Lesson Plan Ceira Lee

P = Pretest (think essential questions)
O = Objectives (measurable - see Bloom's taxonomy)
C = Catch (hook, anticipatory set, etc... use different senses, not a question)
A = Activity (procedure of what the students should do)
R = Review (how will students go over what they've learned?)
A = Assessment (formative and/or summative)
P = Posttest (same as pretest for comparison purposes)
S = Standards (Wyoming, NGSS, etc...) showcasing crosscutting concepts[†]

Pretest Questions	What is the difference between stars and quasars? How do the spectra graphs of stars and quasars differ?
Objectives	SWBAT… • Analyze data from SDSS Navigator Tool • Discuss the importance of knowing the difference between stars and quasars
Catch	Use Google Cardboard VR to have students move through space
Activity	In pairs students will first just become familiar with SDSS and where all the information is displayed. I will have them find 'stars' in SDSS that have a spectra attached to them and the students will print as many as they think look "different". Once they figure out different peaks in the spectra, we will be able to discuss the difference between absorption and emission in stars.
Review	How did you go about finding stars? How did you know they were? Are there any other tools you found useful in the SDSS? What distinguishes a star? What distinguishes a quasar?
Assessments	Students will turn in spectra they collected from SDSS and will have to make notes on the print outs of what makes it that classification
Posttest Questions (same as pretest questions)	What is the difference between stars and quasars? How do the spectra graphs of stars and quasars differ?
Standards	HS-ESS1-2. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
Crosscutting Concepts from NGSS	Energy and Matter Energy cannot be created or destroyed–only moved between one place and another place, between objects and/or fields, or between systems. (HS-ESS1-2)

[†] http://ngss.nsta.org/CrosscuttingConceptsFull.aspx