Fulbright TGC UbD Unit Plan Template			
Prepared by:	**Melissa Hamilton**	**School/Location:**	**Alexandria City Planetarium At Alexandria City High School**
Subject:	**Astronomy** **English EL 11 Unit**	**Grade**: 11	
Unit Title:	The Fault in Our Star….Lore	**Time Needed**:	2-3 weeks

Unit Summary:

Students will learn ten basic constellations and the Greek/Roman mythology usually covered in the United States and many Western Societies.

Students will analyze some of the various stories involving the same stars discussed and process why the US decided to use the Greek/Roman stories instead of others.

Guest speakers will be invited to share some of the star lore from other cultures and students will use Thinking routines of Unveiling Stories to understand how star lores reflect culture.

Since the participating students are in the International Academy, students will then make connections with their own star lore from their own culture and share them via Flipgrid.

The students will reflect on how the star lores they know reflect their own culture after analyzing some examples from other cultures.

Finally, the students will use the knowledge they've acquired about constellations and culture to create their own legends that reflect themselves and their cultures.

They will have the opportunity to present those stories to their class in the planetarium over a couple of days. Depending on COVID-restrictions, other classes will be invited to hear the newly created star lores and their insights into the connections of

stories and cultures -either in person or via zoom.

STAGE 1: Desired Results

ESTABLISHED GOALS:

GLOBAL COMPETENCY:

10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage
11.A Support positive economic, social and environmental links between urban, periurban and rural areas by strengthening national and regional development planning

TECHNOLOGY USED:
The ACPS Planetarium
Stellarium (online planetarium program)
Zoom

RESOURCES:
International Planetarium Society
https://figuresinthesky.visualcinnamon.com
https://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=666

Transfer

Students will be able to independently use their learning to:
Explain to others in a presentation that patterns of stars not only belong to a constellation recognized by the IAU but also have significance to various cultures around the world.

Meaning

UNDERSTANDINGS
Students will understand that:
Each culture has their own interpretation of the stars that are valid. There might be similarities and/or differences that can reflect the culture of origin.

ESSENTIAL QUESTIONS:
To what extent are star lore similar across cultures?
Why are some legends more widely known than others?

Acquisition

Students will know (content):
The five circumpolar constellations, Orion, Taurus (including the Pleiades). The will also be able to discuss at least two different star lore from other cultures.

Students will be able to (skills):
-Compare/Contrast star lores from various cultures
-Interview family members about star lore
-Write their own star lore
-Present to the class their own lore and why learning other stories is important

Stage 2 - Evidence	
Formative Assessments The ability to recognize the patterns in various images relating to the required constellations even when presented with different images superimposed on those patterns (from different cultures.)	**Evaluation Criteria (Learning target or Student Will Be Able To)** Students will work in pairs to find the connections between star patterns with the star lore images from at least two different cultures.
Summative Assessments The presentation of their own star lore and reflection on the importance of valuing other stories will be the summative assessment.	**Evaluation Criteria (Learning target or Student Will Be Able To)** Students will demonstrate that they understand the importance of the star lore from other cultures. They will then present the star pattern they are using and, after sharing the connection to the Greek/Roman IAU constellations, they will share the new star lore they created and how it was inspired. Depending on the restrictions in place at the school, other classes may join the classes to hear the star lore over the two-period presentation day. If restrictions are still in place, collaborate with an astronomy teacher at another school to have a wider audience via zoom.

Stage 3 - Learning Plan

Summary of Key Learning Events and Instruction

Note: Students are already arranged in work teams in their English class and have done jigsawing before so are used to those collaborations.

Day 1:

Hook: Show them what looks like a dot-to-dot page, have them connect the dots anyway they want and then turn and talk with their partner. Opportunities will be given to share out with the class/

Share a movie clip (e.g. Serendipity) where a character explains the legend of Cassiopeia. Explain Star Lores and introduce vocabulary, front loading key terms for the English learners. Explain that different parts of the world have different lores and that they can help us to learn about people in those areas.

Show them the IAU constellations and some of the line patterns and artist interpretations of those lines. Given them the teaser that by the end of the unit, they will be creating their own star lores that can tell us more about themselves and their own culture.

Students will be given a chance to share any experiences they've had with viewing stars/constellations. Their exit ticket will be to respond on a post-it to the prompt: How can we learn about different cultures through star lore?

Day 2 – Planetarium

Introduce the main constellations they will be studying in this unit. (Takes the whole block since they practice recognizing the constellations along the way.)

An introduction to some of the big ideas of cultural stories and relationship to the stars will be given during the show to give context. Focus will be on Greek/Roman mythology since that is what is most shared in the US/Western Hemisphere. However, the session will be woven with some examples from other cultures to help them realize some of the differences.

Days 3-5

Readings from various cultures about the stars using reading skills from class to break down and analyze the stories.

(Note: The collaborating English teacher already has a cultivated hard copy set of essays and stories about constellations from legends around the world that are on the reading levels for the English learners in the class. If additional resources are required, more can be obtained from https://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=666)

Students will be jigsawing the readings by working in small groups to read and understand their articles in expert groups, then switching to

work with their regular work groups to share a variety of articles with each other. The teachers will be assisting small groups and asking probing questions to help them understand the readings.

Day 6

Discussion about why Greek/Roman star lore was used by the West…especially when the Arab and Chinese Astronomers were crucial to the development of astronomy.

Use Harvard's Thinking Routine: Unveiling stories

1. What is the story?
2. What is the human story?
3. What is the world story?
4. What is the new story?
5. What is the untold story?

Students will work with teachers to create questions to ask the Zoom guest speaker (they will also be used when students interview other people on their own.) They will also create their own reflection question to be answered after the speaker.

Optional extension if additional days are available (To be inserted between days 6 and 7:
Prior to students researching stories from their own culture's star lores, have them in their work teams to research two other cultures. On chart paper, they will compare how those cultures interpret what they learned (on day 2) was called Ursa Major. Have them include an illustration of the different ways the stars are "connected" for the lores and explain how it relates to their culture.

Day 7 Zoom Guest Speaker:

(Preferably someone from Navajo Nation who can share some star lore and explain the cultural reason why only some legends are shared during certain times of the year.) If possible, also get someone from China to explain the Qixi Festival on the 7th day of the 7th month of

their year and the story in the stars that relates. If necessary, https://www.lpi.usra.edu/education/skytellers/ audio files could be used if there are any issues with Zoom speakers.

Students take turns asking the questions they helped to create in previous lesson.

Students will then respond to the reflection question they previously created by recording it on FlipGrid.

Days 8-9 Planetarium and Stellarium

Using the Planetarium and Stellarium, show how some of the star lores have changed over time. Ask students to reflect on how the "new story" also can reflect the changes in cultures over time. Introduce the concept that culture is dynamic and how even within a culture there are different ways people will act, think, and believe. Have students think-pair-share the last two prompts about the new and untold story as they reflect on the connections between star lores and cultures.

Continue the discussion weaving in the SDG 10.2 and 11.4 and 11.A

HW – interview family and/or friends to find out if they know of any lore. They will share it on Flipgrid so students can hear many different stories and also practice their English recording their own stories. (Since it's the International Academy, there are students who have migrated from around the world in the classes.)

Day 10

Students will have time to watch a few of the Flipgrids in class as their opener for the lesson.

They will finish off with a partnership matching of patterns of stars with different star lore images superimposed on it to see if they can use the text cues and images and see how the same patterns have been used to tell stories from the stars around the world. They will also analyze how star lores reflect the cultures from whence they come and, in turn, see if they can find the same connections between the star lores they know and their own culture. (Note: Since the students have already been in the planetarium, the Greek/Roman constellations should be easily recognizable in the pages. Mid-Atlantic Planetarium Society has

shared some simple hard-copies of these patterns that are suitable for middle and high school students. But, https://figuresinthesky.visualcinnamon.com will provide a visual example of how it might look in a more detailed format.)

CRT competences: By having students read, hear, and investigate star lores from around the world, it is hoped that they will start valuing the stories that are different from the ones they know. For most of the students they will not be familiar with the Greek/Roman star lore based on the prior experience teaching this unit. It is a great opportunity to place all the lores on an equal footing while still ensuring they know the ones expected in the US while giving them a chance to ask in a safe environment why the US is using Greek/Roman stories instead of those from other cultures.

Days 11-12

Students create their own star lore based on a self-selected constellation pattern. Collaborating teachers are supporting groups and asking probing questions to help the students dig deeper on their stories and the connections to their own culture. Students will be expected to explain the Greek/Roman constellation connection to their new one.

Students will be told they will be asked about what they learned from their own culture and others from this unit.
They will also be asked to explain how their own culture is reflected in their star lore. They will be encouraged to include any visuals or music they would like to add to help explain their culture and star lore they created.

HW – prepare their presentation

Days 13-14 Planetarium

(Faculty will be invited to hear presentations…if Covid restrictions lessen before then, other students will be invited as well but currently only one class of students is allowed at a time. If restrictions remain, other classes could be invited by Zoom.)

Their admit slip will be to respond on a different colored post-it from the first time they answered the prompt: How can we learn about different cultures through star lore?

Students return to the planetarium and will be presenting from the control panel. If one of them does their mentorship in the planetarium, they will be able to control the machine, otherwise they will use the laser pointer to point out their constellation on

the dome, share their story, and explain what inspired them. They will also share insight they've gleaned into learning about lore from around the world.

(Days 15-16 Extension: If additional time is available, students could think of star lores used in pop culture and how that reflects culture as well. Using the same Thinking Routine of Unveiling Stories, students will see how stars become part of our culture seen through movies, books, social media, and even brand names/advertisements. They will have been exposed to some of those connections in the planetarium shows to help get them started.)