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5.05 Advanced Space Weather Guided Notes

Objectives:

In the lesson, you will:

- relate the dynamic properties of the sun to conditions and events on Earth
- describe the role of the sun as the main source of energy for Earth

Big Ideas:

Key Questions and Terms	Notes
What causes solar winds?	
How do auroras form in Earth's outer atmosphere?	
Where do the auroras occur? Where are you most likely to see them?	
How do solar flares affect Earth?	
How do coronal mass ejections cause solar storms?	
What are some predicted effects of a CME hitting Earth now?	
Why do we need the sun?	

Snapshots from the Edge of the Sun Video

Key Questions and Terms	Notes
The sun is a mass of _____ particles and fields.	
We call the sun's atmosphere the _____.	
The steady breeze of particles flowing out from the sun and filling the space between the planets is the _____.	

About 20 million miles out from the sun, the sun's _____ field no longer controls the movement of the charged particles.	
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Space Weather Video

Key Questions and Terms	Notes
When do solar flares happen on the sun's surface?	
M-class flares can cause brief ____ blackouts at the poles and minor radiation storms that might endanger _____.	
A powerful _____ flare can create long-lasting radiation storms, which can harm satellites and even expose airline passengers flying near the poles to small doses of radiation.	
X-class flares also have the potential to create global transmission problems and worldwide _____.	

Coronal Mass Ejection Video:

Key Questions and Terms	Notes
A _____ is a huge cloud of plasma burst out of the sun's atmosphere and is held together with magnetic fields.	
An average CME travels at about _____ million miles per hour.	