Earth and Space Sciences

Name _____ Date _____

SESSION 1

Read a stream record

At a stream gauge, discharge was 3, 4, 12 and 8 m³/s at 8, 9, 10 and 11 a.m. Rain began upstream before 8. Identify the peak, explain a possible lag, and give one reason a paved watershed might respond differently.

Time	8 a.m.	9 a.m.	10 a.m.	11 a.m.
Flow (m³/s)	3	4	12	8

Start here if you were away. Locate the largest value and its time.

SESSION 2

Decode a contour crossing

Along a straight west-to-east path on a map the labeled elevations are 200, 220, 240, 240, 220 and 200 m. The first three contours are closely spaced, the last three far apart. Sketch a plausible profile, identify the steeper flank, and explain what the map leaves unknown about the summit.

Start here if you were away. Mark west and east. Check what one contour interval represents.

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SESSION 3

Use relative time evidence

An undisturbed sedimentary sequence has layers A, B, C from bottom to top. An igneous dike cuts A and B. Both the dike and B are truncated by an erosion surface beneath C. Put deposition, intrusion and erosion in order, and explain two relationships.

Start here if you were away. Draw the layers, then draw only the cuts the prompt describes.

SESSION 4

Explain a seasonal difference

At 43°N, a dataset gives about 15 hours of daylight near June solstice and 9 near December solstice. Explain the day-length difference using Earth's tilt and orbit, and predict the reversed season for 43°S in June.

Start here if you were away. Sketch a tilted axis and mark the Northern Hemisphere.

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SESSION 5

Infer motion from paired locations

In an idealized ocean basin, sea-floor rocks are 0 million years old at a ridge, 2 million years old 60 km east and west, and 4 million years old 120 km on both sides. Estimate one plate's average speed and explain the paired pattern.

Start here if you were away. Follow one side outward and compare distance with age.

SESSION 6

Make a watershed decision

Two sites are compared under the same modeled storm. Site A sends 60% of rain quickly to a stream and peaks at 18 m³/s. Site B sends 35% quickly and peaks at 10 m³/s. Recommend a change to reduce A's peak, explain the mechanism, and identify one limitation.

Site	Rapid runoff	Peak (m³/s)
A	60%	18
B	35%	10

Start here if you were away. List one observation, then one inference about the surface.