Shedding Light on the Sun and Earth Episode 4: The Coriolis Effect Name: _____

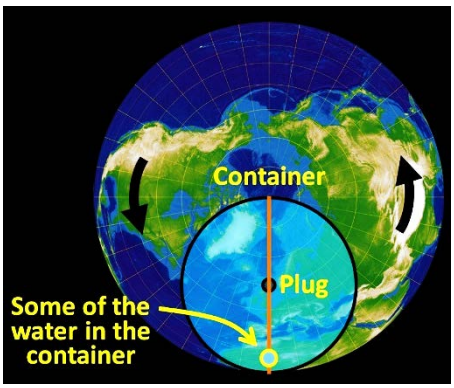
Part A Part B

1. Winds in tropical cyclones rotate _____ in the southern hemisphere and _____ in the northern hemisphere.
2. Briefly describe the experimental procedure that Liacos Educational Media used to examine whether water starts to swirl in a particular direction in the two hemispheres. Diagram

_____
_____
_____
_____
_____
_____
_____

3. Water that is allowed to drain slowly out of a circular container in the southern hemisphere will start to swirl _____.

Part C



4. In a gigantic container that is on the Earth's (rotating) surface, describe what will happen to the water when the plug is pulled? Describe what will happen to the water that is near the equator.

_____
_____
_____
_____
_____
_____
_____
_____

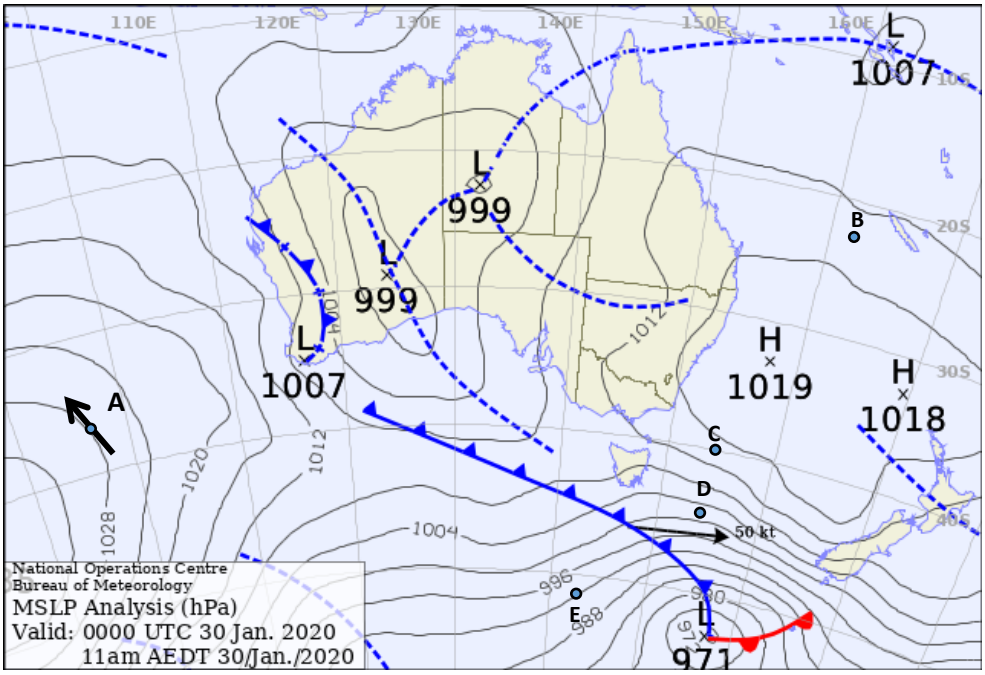
Part D

5. Water that is allowed to drain slowly out of a circular container in the northern hemisphere will start to swirl _____.
6. Suggest a reason that Spiro unplugged the container he used from the bottom, rather than reaching into the water to pull out the plug? _____
_____
_____
7. In Spiro's experiment, only one "variable" was changed to see what effect it had on another variable. Which variable was changed and which variable was observed? _____
_____
_____
8. List some variables in the experiment that were kept constant: _____
_____
_____
_____

Part E

9. Tropical Cyclones (or hurricanes) cause a huge amount of damage in three specific ways:
   (a) _____
   (b) _____
   (c) _____
10. In Category 1 cyclones the wind speeds are about _____ km/hr and in Category 5 cyclones (the strongest cyclones), the wind speeds are more than _____ km/hr.
11. Describe what causes wind. Diagram

_____
_____
_____
_____
_____
_____
_____



12. What do the L's and the H's on the chart above mean? _____

_____

_____

13. In the southern hemisphere, winds rotate _____ around low-pressure regions (like they do around tropical cyclones) and they rotate _____ around high-pressure regions. The winds flow more-or-less _____ (parallel or perpendicular) to the isobars.

14. What are isobars? _____

_____

_____

15. What can be said about the wind speed when isobars are close together and what can be said about wind speed when they are far apart? _____

_____

_____

16. Thanks to the Coriolis Effect (which itself is caused by the fact that the Earth is spinning), winds don't blow directly from Highs to Lows. Instead they move more or less parallel to the isobars. Place arrows on the points B, C, D, and E to indicate the approximate wind direction. "A" has been done as an example.

17. The centre of a tropical cyclone is called the _____.

18. The lowest air pressure shown on the chart above is 971 hectopascals. The air pressure in the centre of tropical cyclone Halong (mentioned in the video) was _____ hectopascals. Lows and tropical cyclones are basically the same thing but the air pressure is especially low in a tropical cyclone which causes _____ winds.

19. When are tropical cyclones most likely to form in the hemisphere that you live in? Why?

_____

_____

Part F

20. Describe how water drains from a container near the equator. _____

_____

_____

Part G

21. The Earth spins from west to east. When viewed from above the north pole, the Earth spins anticlockwise/clockwise. When viewed from the above the south pole, the Earth spins anticlockwise/clockwise.

22. In which direction does the wind in all tropical cyclones that is closest to the equator move?

_____

_____