**Holt Invitational**

**Dynamic Planet**

**SCORING KEY**

**Team Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**School: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Station One**

1. **\_\_\_\_\_\_\_A\_\_\_\_\_**
2. **\_\_\_\_\_\_\_B\_\_\_\_\_**
3. **\_\_\_\_\_\_\_D\_\_\_\_\_**
4. **\_\_\_\_\_\_E\_\_\_\_\_**
5. **\_\_\_\_\_\_H\_\_\_\_\_\_**
6. **A crevasse perpendicular into the continental shelf. Turbidity Currents**
7. **Crust is melted (recycled), oceanic plate moves under another plate**

**Station Two**

1. **\_\_\_\_\_\_Fringing Reef\_\_\_\_\_\_\_**
2. **\_\_\_\_\_\_Barrier Reef\_\_\_\_\_\_\_**

**10.)\_\_\_\_\_\_Atoll\_\_\_\_\_\_\_**

**11.) \_\_\_\_\_\_8.3-8.5 (+/- .3)\_\_\_\_\_\_\_**

**12.) \_\_\_\_\_\_A\_\_\_\_\_\_\_**

 **Station Three**

**13.) \_\_\_\_\_\_Diurnal\_\_\_\_\_\_\_**

**14.) \_\_\_\_\_\_Semidiurnal\_\_\_\_\_\_\_**

**15.) \_\_\_\_\_\_Mixed\_\_\_\_\_\_\_**

**16.) \_\_\_\_\_\_A\_\_\_\_\_\_\_**

**17.)\_\_\_\_\_\_C\_\_\_\_\_\_**

**Station Four**

**18.) \_\_\_\_\_\_\_A\_\_\_\_\_\_**

**19.) \_\_\_\_\_\_\_B\_\_\_\_\_\_**

**20.) \_\_\_\_\_\_\_D\_\_\_\_\_\_**

**21.) \_\_\_\_\_\_\_C\_\_\_\_\_\_**

**22.) \_\_\_\_\_\_\_A\_\_\_\_\_\_**

**23.) \_\_\_\_\_\_\_B\_\_\_\_\_\_**

**Station Five**

**24.) \_\_\_\_\_\_\_C\_\_\_\_\_\_**

**25.) \_\_\_\_\_\_\_Decrease\_\_\_\_\_\_**

**26.) \_\_\_\_\_\_\_Increase\_\_\_\_\_\_**

**27.) \_\_\_\_\_\_\_Decrease\_\_\_\_\_\_**

**28.)\_\_\_\_\_\_\_Increase\_\_\_\_\_\_**

**29.) Mix of fresh and salt water. Places where fresh meets ocean. (Estuaries. River mouths)**

**SAL.) 36.5 ppt (1.80655 \* Chlorinity)**

**Station Six**

**30.) 1.\_\_\_\_\_\_Epipelagic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **2.\_\_\_\_\_\_Mesopelagic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **3.\_\_\_\_\_\_Bathypelagic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **4.\_\_\_\_\_\_Abyssopelagic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **5.\_\_\_\_\_\_Hadalpelagic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**31.) Where temp rapidly changes with depth**

**32.)Where Salinity rapidly changes with depth**

**33.) Where density rapidly changes with depth**

**Station Seven**

**34.) \_\_\_\_E\_\_\_\_\_\_\_\_\_**

**35.)\_\_\_\_D\_\_\_\_\_\_\_\_\_**

**36.)\_\_\_\_B\_\_\_\_\_\_\_\_\_**

**37.)\_\_\_\_C\_\_\_\_\_\_\_\_\_**

**38.)\_\_\_\_A\_\_\_\_\_\_\_\_\_**

**Station Eight**

**39.)\_\_\_\_\_C\_\_\_\_\_\_\_\_**

**40.)\_\_\_\_\_Fjord\_\_\_\_\_\_\_\_**

**41.)\_\_\_\_\_Partially Mixed\_\_\_\_\_\_\_\_**

**42.) \_\_\_\_\_Salt Wedge\_\_\_\_\_\_\_\_**

**43.) \_\_\_\_\_Well Mixed\_\_\_\_\_\_\_\_**

**44.) \_\_\_\_\_\_A\_\_\_\_\_\_\_**

**Station Nine**

**45.) \_\_\_\_\_\_A\_\_\_\_\_\_\_**

**46.)\_\_\_\_\_\_B\_\_\_\_\_\_\_**

**47.) SKIP, NO QUESTION**

**48.) Thermohaline Circulation. Surface water becomes cold and sinks to initiate deep ocean circulation.**

**49.) \_\_\_\_\_C\_\_\_\_\_\_\_\_**

**Station Ten**

**50.) Seafloor Spreading**

**51.) Oldest farthest away from mid ocean ridge(Subduction zone), youngest closest to ridge.**

**52.) Crust is created**

**53.) At the zone of subduction**

**54.)Volcanoes**

**55.)Sea floor spreads apart as new crust is made.**

**Station Eleven**

**56.)\_\_\_\_\_\_D\_\_\_\_\_\_\_**

**57.)\_\_\_\_\_\_C\_\_\_\_\_\_\_**

**58.)\_\_\_\_\_\_B\_\_\_\_\_\_\_**

**59.)When waves collide out of phase and cancel each other out**

**60.)\_\_\_\_\_\_A\_\_\_\_\_\_\_**

**61.)Vertical movement of deep, nutrient rich water. Creates high productivity.**

**62.)- = output + = input**

**+radiation from sun**

**-long wave back radiation (back into space), direct heat transfer air/water.**

**-water to air**

**+air to water**

**-evaporative heat transfer (+ when condensation, rare)**

**(can be either) +/-advective heat transfer, currents, vertical convection, turbulence.**