**KEEPING HEAT IN DESIGN ACTIVITY**

Location: Time of Year: Time of Day: Ruby, Alaska Winter 9:00 am

**The Story:**

Emmy is a 25 year-old engineer, who has decided to compete in the IDITAROD dogsled race for the first time. She has gone dog sledding many times but never on her own. The IDITAROD is a very stressful race, and Emmy is trying to remember everything that she needs to do. On the 13th night of the race, Emmy and her dogs camp out in the town of Ruby. In the morning, Emmy gets up, packs her gear, and hooks the dogs to the sled. They begin their journey to the next town, only along the way something goes terribly wrong! Emmy’s dogs come unhooked and run on without her! Emmy is stranded! The temperature is only 1°F, and Emmy knows she needs a way to stay warm until someone can come help her. All she has around her is her sled, the supplies she packed, and a few sticks she can gather from the woods.

**Her Supplies:**

• A map

• A sandwich bag

• A t-shirt

• An energy bar wrapper

• A plastic bag

• Sticks

\* Thermometer

**The Challenge:**

Use Emmy’s supplies to make a shelter that will keep the cold Arctic snow out, but let the sun warm her up!

**Materials using Crystals:**

|  |  |
| --- | --- |
| **Materials** | **Color** |
| **Sandwich Bag** | **Dark Blue** |
| **Tarp** | **Dark Blue** |
| **Sticks** | **Blue to Black** |
| **Rainbow Map** | **Dark Green/Blue** |
| **T-shirt** | **Red/Light Green** |
| **Wrapper** | **Black/Light Red** |
| **Insulated Foil** | **Black** |

**Thermal Crystal Data:**

|  |  |
| --- | --- |
| **Color** | **Approximate Temp. (°F)** |
| Black | 76-77 |
| Red | 77-79 |
| Light Green | 79-81 |
| Dark Green | 81-83 |
| Blue | 83-85 |

**Design tables:**

Which materials would you use? Which colors would you use for the thermal crystals?

|  |  |
| --- | --- |
| Materials | Color |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| Unprotected crystal | Color |
| NOT in the Light |  |
| In the Light |  |

Below you will draw out how you would set-up Emmy’s shelter and what you would use: