



## **DSBN REGIONAL GRADE 7/8 TECHKNOWLEDGE CHALLENGE 2008 ELEMENTARY LEVEL SCOPE**

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### **PURPOSE OF THE CONTEST:**

Due to the ever changing environmental impact of global warming, oceanographers are seeing a rapid increase in sea water temperatures. As a result, the whale community is getting confused on where to migrate and they sometimes wind up in shallow water or on the beach. A group of concerned citizens have formed an organization called Whale Rescue and they need your help in figuring out a way to rescue the whales from the shore and get them back out to sea.

Your design and engineering team must submit a proposal, complete with a working prototype, design sketches and written documentation to Whale Rescue. Each team will be asked to demonstrate the effectiveness of their design by using their prototype to rescue the heaviest whale and help them return to open water.

### **EVENT DETAILS:**

Date: Feb. 19, 2008

Time: 9:00 - 3:30

Location: Fort Erie , Stamford, St. Catharines Collegiate, Lakeport, West Park, Grimsby, and E.L. Crossley D&T Centres

The top two finishers at each qualifying contest will compete in the DSBN finals at Brock University on Feb.21, 2008 from 1:00 - 3:00 for the right to represent DSBN at Skills Ontario.

### **SKILLS AND KNOWLEDGE TO BE TESTED:**

Using a wide variety of materials provided on the day of the contest, teams of 4 students will design and build prototypes of their whale rescue machine using the resources available at the D&T shop. These resources include computers, hand tools and power tools. The students will be judged on their ability to follow the "Design Process" to develop their prototype as well their ability to safely construct and demonstrate its effectiveness.

### **SAFETY REQUIREMENTS:**

Competitors are required to follow all industry safety standards during the competition.



## **EQUIPMENT, MATERIALS, TOOLS AND SUPPLIES:**

**Equipment Supplied by the Contest Coordinator:** All necessary equipment for design and construction is supplied.

**Equipment Supplied by the Competitor:** Digital Camera

## **CLOTHING REQUIREMENTS:**

Casual attire.

## **PRIOR KNOWLEDGE AND SKILLS**

- Knowledge of the design process
- Functions of simple machines
- Use of gears and gearing to improve mechanical advantage
- Use of pulleys and wheels to improve mechanical advantage and efficiency

## **PROJECT AND COMPETITION EXPECTATIONS:**

Some of the whales can be moved with the help of volunteers on the beach but the real problem lies with the heavy whales. Using the materials provided you will be judged on how much total weight you can move. No direct hand power is permitted (such as pulling a string).

You may only use the materials provided. Be careful with the materials as you may not obtain replacement parts. You may use the material provided any way you wish.

## **JUDGING CRITERIA:**

One point will be awarded for each gram lifted in the 2.5 minute time allotment. One time-out period of 2.5 minutes may be given for repairs at the judges discretion. The judging at the DSBN finals will include a poster style presentation for the judges showing the steps followed in the design process to achieve the final product. You should include all design sketches and photos.

## **ENTRY:**

Teachers must register each student on their team through the DSBN Technology website at [www.dsbn.edu.on.ca/TechEd](http://www.dsbn.edu.on.ca/TechEd). Complete information, including the parent/guardian consent and release form, must be submitted to ensure your team has a place in this challenge. Teachers should also forward a list of competitors participating from their school to the contest coordinator at your D&T Centre prior to the date of the contest. Spaces are limited and will be awarded to the first teams registered from different schools. Any additional spaces in the challenge will be given to the schools whose additional teams are first to fully register.

**TRANSPORTATION:**

Students are responsible for their own transportation.

**TEACHER'S ROLE:**

Instructors are expected to acquaint their student participants with all of the enclosed guidelines. Teachers should accompany their students to the competition, but may not assist the competitors during the challenge.

**SPECIAL INSTRUCTIONS OR GUIDELINES:**

Additional details may be provided on the day of the challenge.

**COMPETITION AGENDA:**

Arrival: 8:30 am

Competition start: 9:00

Competition end: 2:30

Judging: 2:30 - 3:00

Lunch and refreshments will be provided for students and staff. If any students have special dietary requirements please inform the D&T teacher at the competition site in advance of the competition.