Designing Your Backpack

NOVA Activity **Battle of the X-Planes**

Procedure

① Before you begin your design, look at some existing backpacks. What special features do they have? How are they constructed?

② For your backpack design, you need to know the dimensions of the items that must be placed in the backpack. Use your ruler to measure the sample items.

③ As you design your backpack, consider
- What are the most important elements of the design?
- What kinds of materials are you going to use and where?
- Which parts of the backpack need to be closed off and how?
- What will distinguish your backpack from its competitors?

④ After designing your backpack, determine how much of each material is necessary to create your design. Make sure to follow the *Materials Guidelines* listed on your *Materials Costs* activity sheet. Then use the costs listed on the *Materials Costs* activity sheet to calculate the cost of each material and the final cost of your backpack.

⑤ Evaluate your initial design and costs and redesign the backpack until you are satisfied with the results.

⑥ Use any medium to create an advertisement that illustrates the superior features of your final backpack. Make sure the advertisement includes
- a drawing of the design
- backpack dimensions
- how the product meets design requirements
- any additional selling features
- materials used
- cost

⑦ When you are done, you will have to present your design information to the design evaluators (your classmates), and they will choose one of the designs for the production model. Hopefully, it will be yours!

Questions

Write your answers on a separate sheet of paper.

① What was your design process? Did you create any designs that did not work? What did you learn from these designs?

② Which features of your backpack are the most desirable? What is the least desirable part of your design?

③ What constraints prevented you from presenting a design that was better than your final design?

④ Which design feature was the most challenging to incorporate and why?

⑤ Is it possible to create a backpack that meets all needs without any compromises? Why or why not?