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**DRYING BY DESIGN**  
**DESIGN ACTIVITY FOLIO**

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ACTIVITY TITLE:

Students in Groups:

Class and Period:

Date:



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**CLARIFY DESIGN SPECIFICATIONS AND CONSTRAINTS**

**RESEARCH AND INVESTIGATE THE PROBLEM**

Think about your design criteria. What are the questions that you need to answer to help design a solution?

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What sources of information have you used?

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What information have you gathered?

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What are the variables affecting your design? (A variable is one of the factors that can influence the performance of your design).

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Choose one of the variables. Predict how changing that variable might affect your design.

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Write down the science investigation(s) you need to conduct to find out for yourself about important variables and their effects.

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What data will you collect? How will you take measurements?

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Describe the investigation(s) you have conducted and show how you used the results to improve your design.

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## **GENERATE ALTERNATIVE DESIGNS**

Describe four of your possible solutions to the problem. Remember to consider the specifications and constraints. In your description indicate what you consider each solution's strengths and weaknesses. Use the space at right for sketches, diagrams or photos of ideas you would consider.

Alternative Solution 1.

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Alternative Solution 2.

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Alternative Solution 3.

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Alternative Solution 4.

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**CHOOSE AND JUSTIFY THE OPTIMAL DESIGN**

Choose your preferred solution. On what basis did you make your choice?

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What tradeoffs did you make in selecting the alternative that you did?

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**DEVELOP A PROTOTYPE**

What resources do you need to build a model of your design?

PEOPLE (WHO?): \_\_\_\_\_

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INFORMATION (WHAT?) : \_\_\_\_\_

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TOOLS/MACHINES (WHICH ONES?):

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MATERIALS (WHICH ONES?)

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CAPITAL(HOW MUCH DO THINGS COST?)

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ENERGY (WHAT TYPES?)

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TIME (HOW MANY HOURS?)

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Construct a prototype of your solution. Photograph your model and place the photos in the space below.

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**TEST AND EVALUATE THE DESIGN SOLUTION**

How will you test your model against the design criteria? Describe the test. Record the results.

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What problems did you encounter in designing your solution?

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If you were to redesign your model, what changes would you recommend in your design?

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What science principles and mathematical modeling would help you to improve the performance of your design?

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*Optimization:* What tradeoffs would you have to make if you made the recommended changes?

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**COMMUNICATING YOUR ACHIEVEMENTS**

Describe the plan you will use to present your solution to your class. What presentation software and media will you use?

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**REDESIGN THE SOLUTION**

Redesign your solution and discuss with the reason for the new design. Describe the strength and weakness of the new design.

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