

Lake Washington School District
Teaching and Learning Framework

Grades 3-5

Science

Supplemental Materials | August 2007

Supplemental Materials | Third Grade

Designing a Solution to a Human Problem

At third grade, students will be experienced in the development of labeling diagrams. Teacher continues to model Stating the Problem to be Solved. Students will learn how to write a plan (procedural writing) through teacher modeling and group interaction. They will also be working toward writing steps to solve the problem independently by spring. “How to test the plan” statements should be modeled.

Stating the Problem

- Teacher continues to state the problem for students to solve.

Gather Information and Gather Scientific Information

- Teacher models how to gather scientific information and has students record the process
- Students use complete sentence to describe information to be used to solve the problem (e. g. books, ActivBoard, United Streaming).

Explore Ideas

- Students are encouraged to write or draw at least two ideas for using the materials to solve the problem. Then students will be given time for free exploration with the materials to find possible solutions

Make a Plan

- Students use a writing template for a paragraph about their plan. Students include details to identify the parts or materials used in the plan and give a reason for using those parts or materials .
- e.g. My design plan for a crayfish habitat includes many different parts. First, I would use a _____ because _____. Another part would be _____ because _____. Also I would add _____ because _____.

Diagram of the Plan

- Students diagram and label each part of the plan.

Steps to Solve the Problem

- In fall, teacher models procedural writing on ordered steps to build their plan, working towards independence by spring.

Test Solutions

- Teacher models during a group discussion on how plan will be tested and how results will be measured
- Students will test the effectiveness of plan and share their results.

Supplemental Materials | Fourth Grade

Designing a Solution to a Human Problem

At fourth grade, students will be well-versed in the writing of exploring two ideas, diagrams and labels, and writing Steps to Solve the Problem. Students have had practice with writing about gathering information, and the plan so they should work towards independence without sentence or paragraph frames by spring. Teachers should model and students should practice writing about how to scientifically test their solution with independence by spring.

Stating the Problem

- Teacher continues to state the problem for students to solve.

Gather Information and Gather Scientific Information

- In fall review and practice writing in sentences about gathering information with individual mastery of using scientific sources by spring.

Explore Ideas

- Students write and draw two different ideas for solving the problem and then given time for free time to explore with the materials to find possible solutions.

Make a Plan

- Teacher reviews writing a description of each part of the plan using a paragraph frame, including where each part will be used and why its function is important to the solution, with mastery without a frame by spring.

Diagram of the Plan

- Students diagram and label each part of the plan.
- Teacher models, using the state rubric, matching each part of the diagram to each part of the written plan, with mastery by spring.

List Steps to Build the Plan

- Students explains the steps used to build the plan.
- Students put numbered steps in logical order so that others could follow directions.
- Teacher models, using the state rubric, matching each material used in the diagram to materials used in the steps.

Test Solutions

- In fall, teacher models and facilitates group discussion on how plan will be tested and how results will be measured, with practice throughout the year.
- Students test the effectiveness of plan.
- By spring students are independent writing about testing solutions.
- Group discussion of whether or not the plan needs to be redesigned.

Supplemental Materials | Fifth Grade

Designing a Solution to a Human Problem

At fifth grade, students will be well-versed in Gather Information, Explore Ideas, Make a Plan, Diagram the Plan, Steps to Build the Plan, and Test Solutions. Review will emphasize matching the parts of the plan to the diagram and the steps to build the plan using the rubric to assess their design writing. Writing organization in each step will be practiced, mastered and assessed with the design format rubric.

Stating the Problem

- Teacher continues to state the problem for students to solve.

Gather Information and Gather Scientific Information

- Students write about the gathering of scientific information to help solve a design problem.

Explore Ideas

- Students write at least two different ideas to help solve the problem including how the part fits together.

Make a Plan

Students write a paragraph description of:

- Each part of the solution
- Where each part will be used
- Why its function is important to the solution

Diagram of the Plan

- Students diagram and label each part of the plan.
- Students match each part of the diagram to each part of the written plan and to the steps.
- Students make sure all required parts in the design are included in the diagram.

List Steps to Build the Plan

- Students explain the steps used to build the plan.
- Students put numbered steps in logical order so that others could follow directions.
- Students use the state rubric to match each material used in the diagram to materials used in the steps and in the written plan.

Test Solutions

- In fall, teacher reviews and conducts group discussion on how plan will be tested scientifically and how results will be measured. Students write independently.
- Students test effectiveness of plan and record their results.
- Group discussion of whether or not the plan needs to be redesigned.