

# Activity 10



## BUILDING AN AGRIMOBILE

### STUDY QUESTION:

What can we say with pictures and shapes? Can I balance unequal masses?

### THE ACTIVITY:

Students construct a mobile that illustrates a sector of agriculture and evaluate it structurally and thematically.

### CURRICULUM FIT:

#### GRADE THREE - LANGUAGE ARTS

- Use the appropriate forms of written language for clear communication: paragraphs, stories, directions.

#### GRADE THREE - SOCIAL STUDIES

- Interdependence of communities.

#### DIVISION ONE - ART

- Construct a three-dimensional object based on a two-dimensional drawing.
- Concept of balance and composition.
- Work with varied media.

#### DIVISION ONE - SCIENCE

- Students will measure and compare masses and volumes of samples of matter.

### AGRICULTURE CONCEPTS: Diversity

Production, Processing & Distribution System

### PURPOSE:

To show students that agriculture (and therefore all human endeavours) can be considered in terms of science, art, social studies and language.

### MATERIALS REQUIRED:

Task sheets provided, stiff wire or thin dowelling, string or thread. Any of: construction paper, light cardboard, pipe cleaners, toothpicks, clay, plaster, vegetables and other art materials.

### TIME REQUIRED:

Two periods.



# BACKGROUND — For the Teacher

In writing this activity we have sought to produce the ultimate in subject matter integration for Grade Three teachers and their students. The construction and discussion that they carry out, and the mobiles that they build will introduce concepts and exercise skills required by the Alberta Programs of Studies for art, science, social studies and language arts.

In terms of agriculture this activity aims to extend students picture of agriculture beyond the farm. Children share with most of us the mental equation agriculture = farming, where, in fact, farming provides the production base to an extensive and complex industry. Establishing this expanded understanding is a primary goal of the Agriculture In The Classroom Program.

Five product types are illustrated in the pattern sets: dairy, honey, canola, poultry and wheat production. Many other products are available if particular students have a special interest or knowledge about them. For each product type, the illustrations have been chosen to include images from production, processing, transportation and retailing phases of the system. By dealing with these images students will begin to see a chain of activities bringing food to their house from its beginnings on farms.

The drawings included as data sheets are intended as starting points so that students can build three-dimensional representations of the original object. You can increase the creative input from students by asking them to add images based on pictures or objects they can find elsewhere, or on special knowledge of their own.

In Theme I (Matter and Energy) of the Division One Science program, students are to look at the topic Properties of Matter. In this activity your students will exercise one of the skills required by the program of studies for this topic: measure and compare masses of samples of matter. The activity also introduces students to the concept of balance, an elective topic for this theme.

For the students to gain the most important understanding of balancing unequal masses, you should encourage them to build their mobiles asymmetrically. This will also produce the most interesting mobiles. Some arrangements are shown on Data Sheet One.

As students consider and work on the parts of their mobile it is important to guide their discussion to matters regarding community. Questions like those on Teacher Resource Sheet Three will help students toward an understanding of the interdependence and self-reliance issues pursued in Social Studies.

The write-up that draws this activity to a conclusion directly addresses curriculum requirements for writing skills in Grade Three.

## PROCEDURE

### Part 1

- Preparation
1. Make enough copies of Student Resource Sheets Two through Six so that each pupil can build a mobile.
  2. Gather a supply of the support rods and connecting cords.
  3. Decide what media you will make available and assemble supplies of each.

### Part 2

- Introduction
4. Ask students if they have seen a mobile before. If possible provide a simple example.
  5. Explain that each student is to make a mobile in this activity.
  6. Assign or have students choose a) one of the patterns available as a subject, and b) which materials they want to use.

### Part 3

- Activity
7. Ask students to estimate the relative masses of the real objects pictured and to give their sculptures the same relative masses.

#### **NOTE**

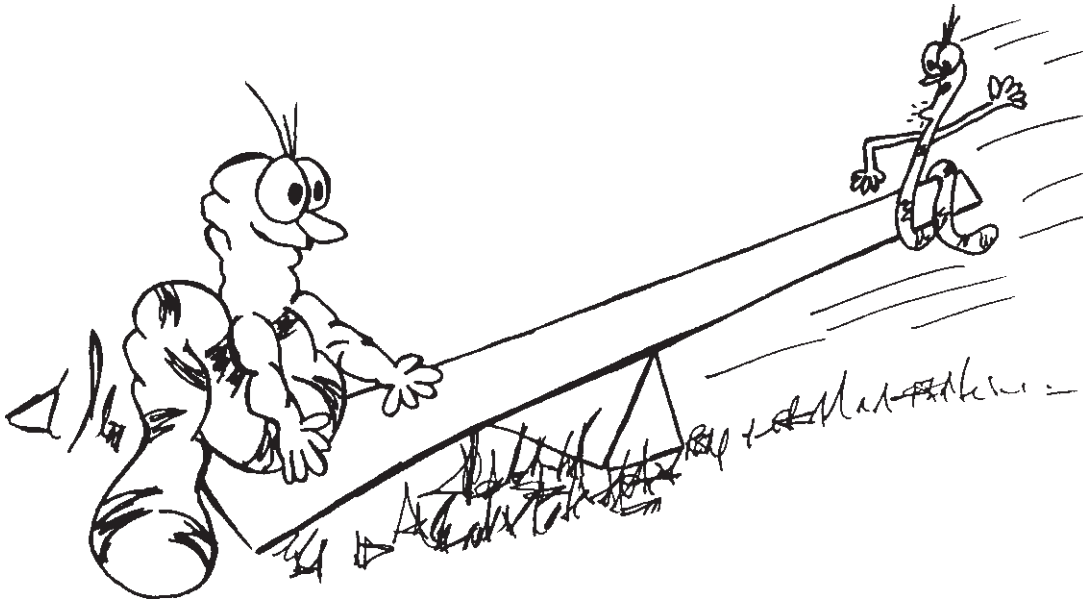
Once students have ranked their components by mass, they can most easily determine the mass of their own model by dividing up their supply of raw materials so that the heaviest hanger has the most material, and each lesser one has less material until they reach the lightest.

8. Have students build, mold or carve the pieces for hanging on the mobile.
9. If sensitive enough scales or balances are available, have students weigh each of their hangers and record the weight on Student Resource Sheet One.

10. Let students arrange their images in a pattern that they would like to follow.
11. Help the students attach lengths of connecting cord to each hanger.
12. Beginning at the bottom level of the mobile, have students attach cords to the rods.
  - a) Cords attaching to the ends of the rods can be fixed with glue.
  - b) Cords supporting lower rods must be adjusted between the ends to find a balance point before they are permanently fixed.
13. If students weighed their hangers in step 9, have them measure the distance from where each object or group of objects is attached to the balance point and record in the proper place on Student Resource Sheet One.

Conclusion

14. Hang the mobiles as they are finished and have each student write a report on one of three topics:
  - a) How I Built My Mobile
  - b) Why My Mobile Balances
  - c) What Story My Mobile Tells



## DISCUSSION QUESTIONS

1. What other pictures could you add to your mobile to tell a better story about your food?
2. What other foods do you know the story of?
3. How can you make a light object balance a heavy object?
4. If you have three of the same objects how can you balance two of them with the third one?
5. Has anyone seen other mobiles?
6. What is the largest mobile in the world? Where would we find it? Who made it?
7. How would you make a large object that was lighter than a small object?

## RELATED ACTIVITIES

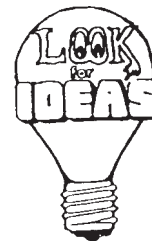
1. Have students make their mobiles of real objects, food labels or photographs from magazines.
2. Have the students interview people who produce or process foods used as mobile subjects.



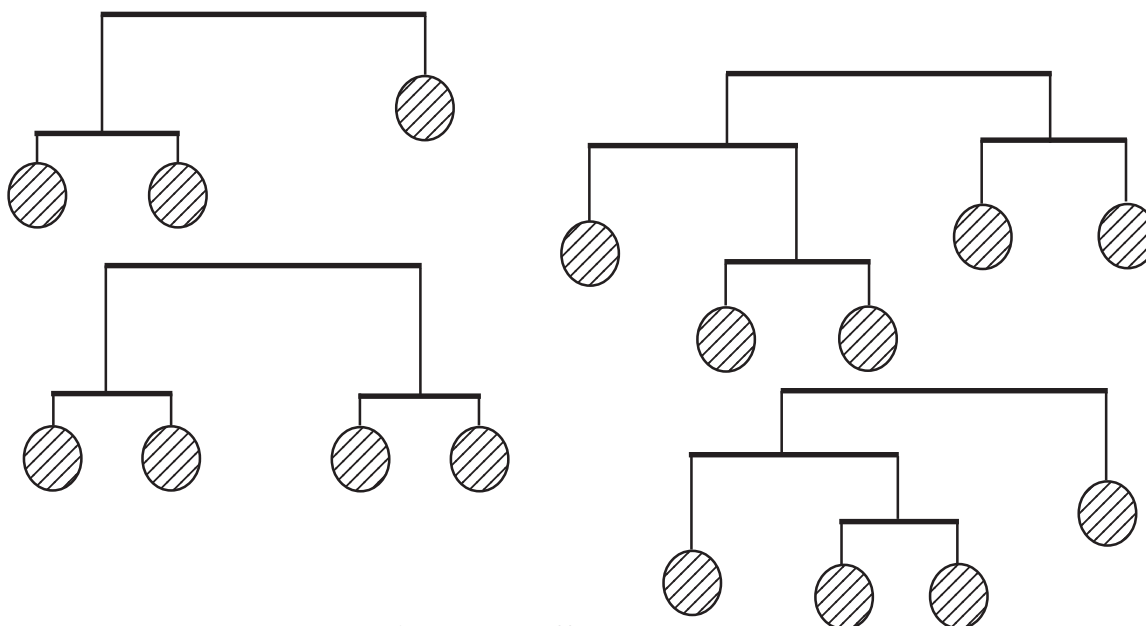
# TEACHER RESOURCE

## SHEET ONE

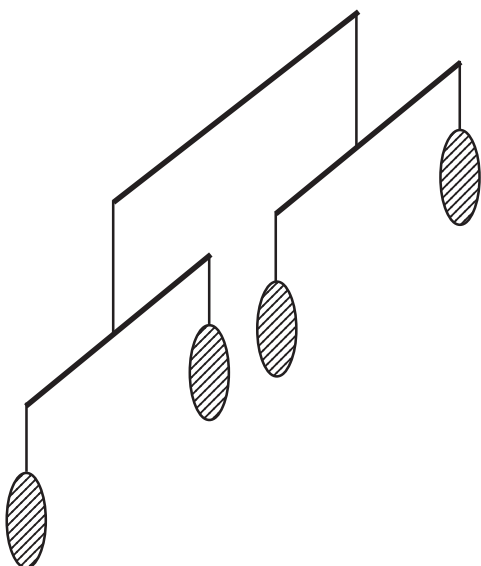
### Patterns For Mobiles



Asymmetry shows more about balance than symmetry.

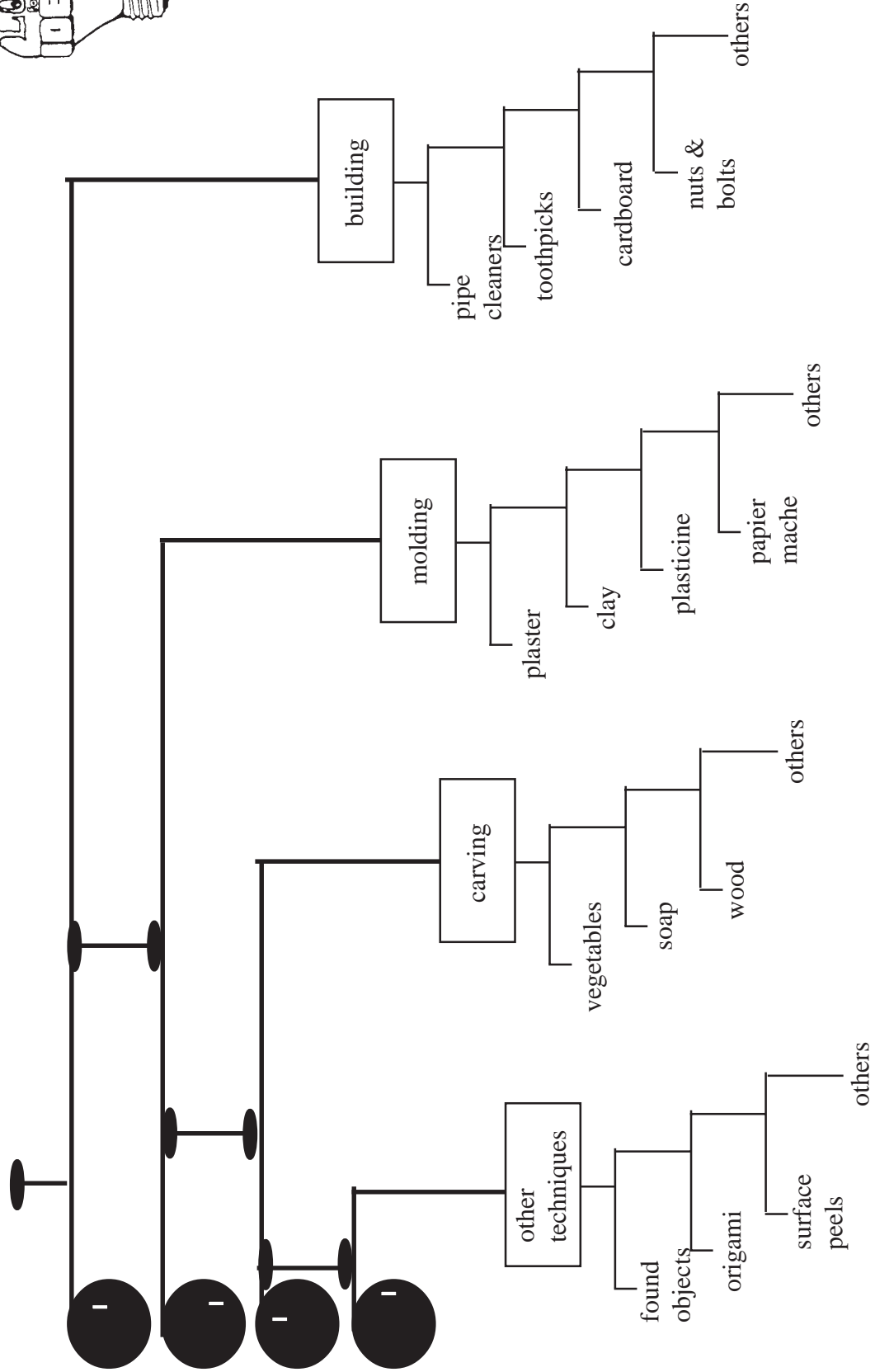
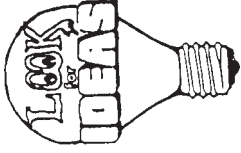


You can choose a balance point to rest off level.



There are many more ways to vary your mobile; the trick is to think of what you want and figure out how to do it.

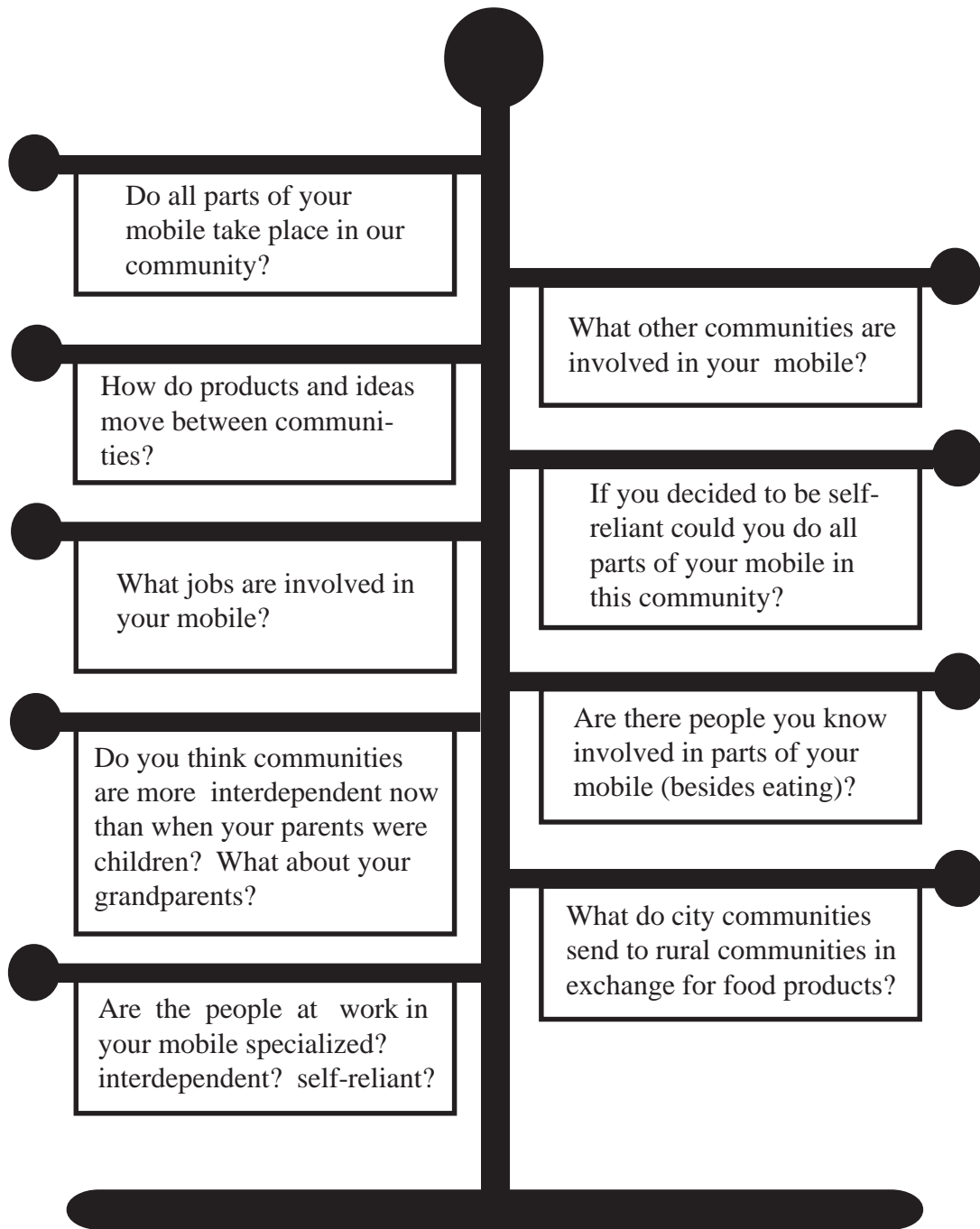
# SHEET TWO - Media for Mobiles      TEACHER RESOURCE



# TEACHER RESOURCE

## SHEET THREE

### Social Studies Questions to Consider While Building





# STUDENT RESOURCE

## SHEET ONE

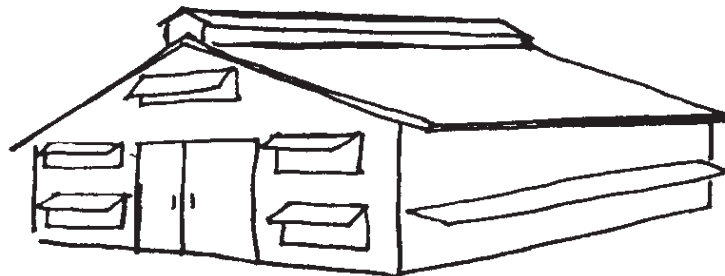
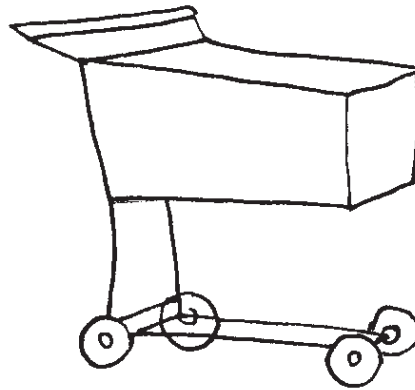
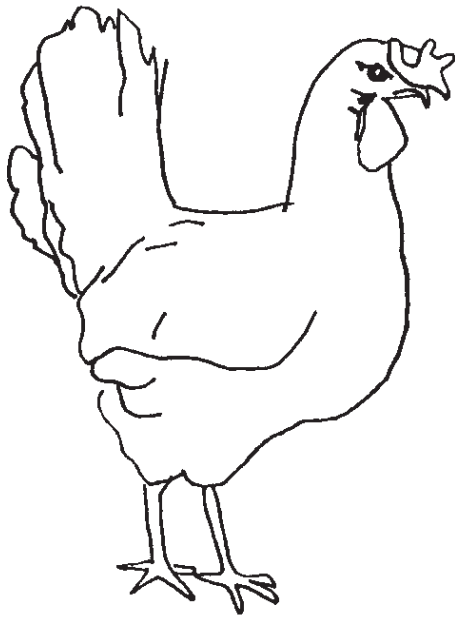
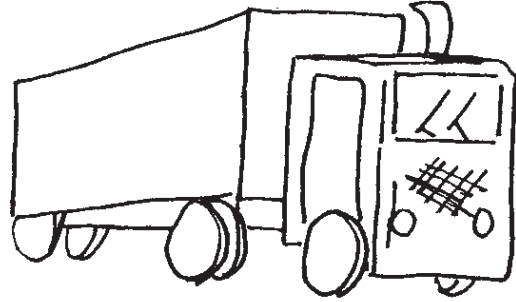
### The Science of Balance



|   | OBJECT | MASS IN GRAMS | DISTANCE IN CM. | PRODUCT |
|---|--------|---------------|-----------------|---------|
| 1 |        |               |                 |         |
| 2 |        |               |                 |         |
| 3 |        |               |                 |         |
| 4 |        |               |                 |         |
| 5 |        |               |                 |         |
| 6 |        |               |                 |         |
| 7 |        |               |                 |         |
| 8 |        |               |                 |         |

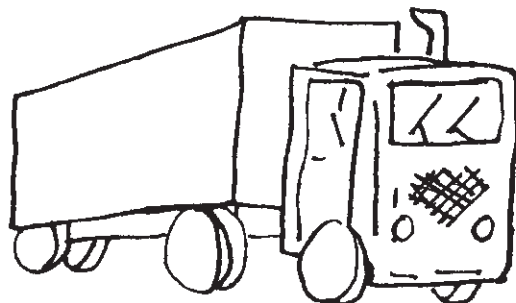
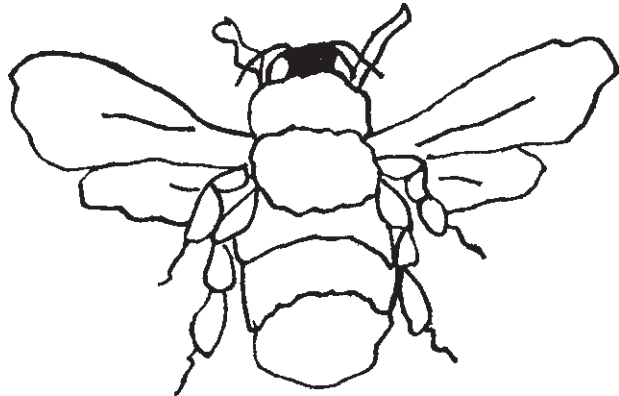
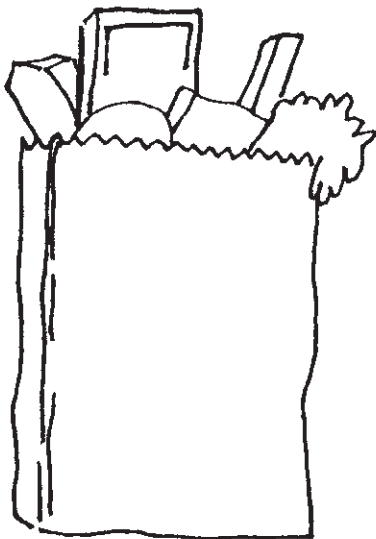
# STUDENT RESOURCE

## SHEET TWO - Poultry



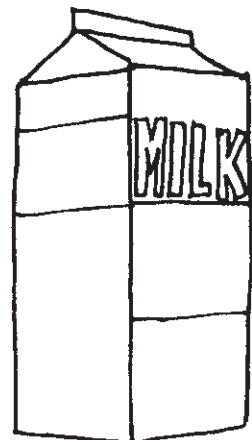
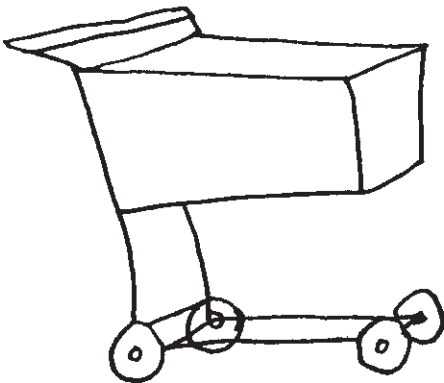
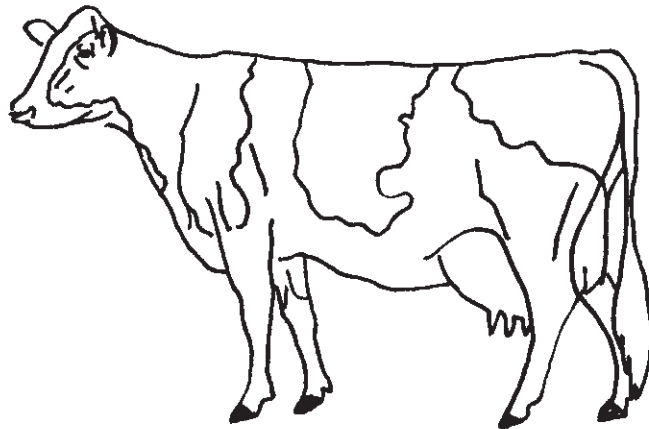
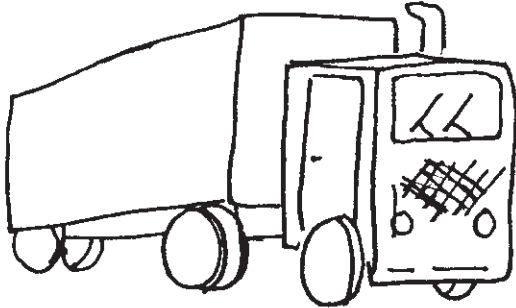
# STUDENT RESOURCE

## SHEET THREE - Honey



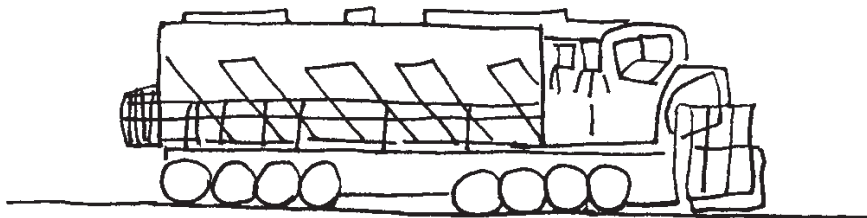
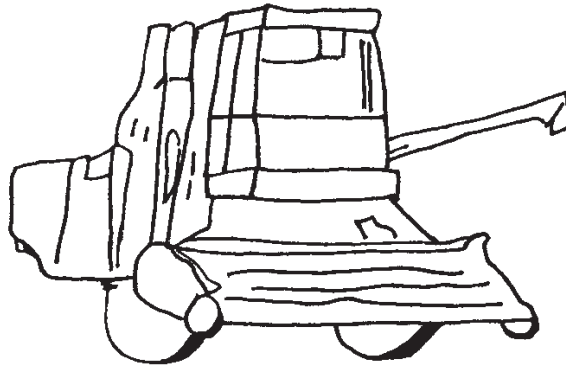
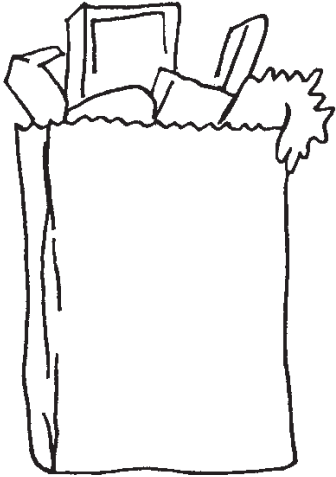
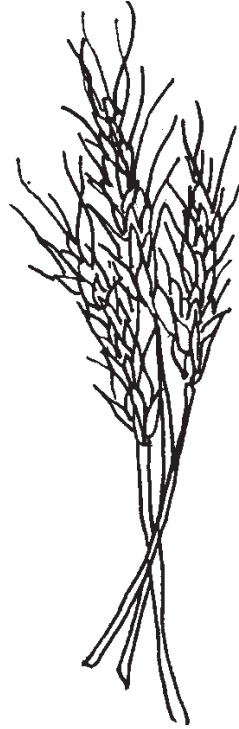
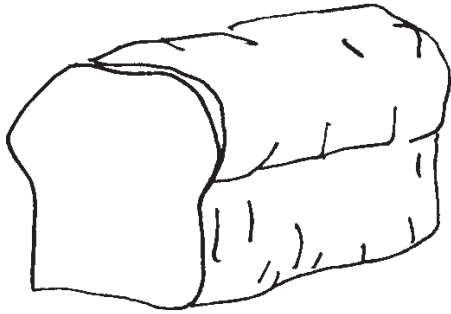
# STUDENT RESOURCE

## SHEET FOUR - Dairy



# STUDENT RESOURCE

## SHEET FIVE - Wheat



# STUDENT RESOURCE

## SHEET SIX - Canola

