

GETTING STARTED

AN INTRODUCTION TO WAYS OF KNOWING: STORIES OF THE IINII

Science Alberta Foundation is pleased to make *Ways of Knowing: Stories of the Iinii*, one of our *Science-In-A-Crate* programs, available in your community.

As part of Science Alberta Foundation's Ways of Knowing series, this crate honours Aboriginal perspectives in the studies of science. In particular, it addresses the curriculum requirements of the Grade 3 Testing Materials and Designs, and Building with a Variety of Materials units and infuses ICT (Information and Communication Technology) and FNMI (First Nations, Metis, Inuit) perspectives and outcomes. The activities within the crate provide opportunities for families, elementary students, and community groups to use their scientific knowledge and skills to develop their understanding of the science of construction.

The introductory activity showcases an overlay book of beautiful artwork and an oral story which introduces the theme for the crate. Both of these crate materials encourage participation in a "grand conversation" about the needs and purposes that lead to the design and the choice of materials to make objects and structures for everyday use. Threads from this legend are included in the "*Learning from Hayley's Great Grandmother's story*" scripts designed to set the scene for each activity. The Activity Guide provides all the information needed to set up the crate and have participants successfully complete each of the seven activities. Included within this guide is a list of specific materials, set-up instructions, and teacher background information for each of the seven activities. Optional extension activities have been added to each activity and may be used for further guided discussion and research. Each activity has a Background Information stand which students need to read or have read to them prior to starting this activity and a What to Do stand that gives step-by-step instructions on how to complete the exercise.

The activities within the crate are designed as hands-on experiential learning stations that need not be completed in chronological order. The underlying assumptions are that students are able to be self-directed in their learning and are able to work cooperatively with each other but independently as a group. Each group will complete the activities and answer the questions provided in the student journal. This journal is another resource for developing science concepts and may be used as documentation of the learning of each participant. Optional probing questions provide opportunities for students to deepen their understanding by connecting their learning, interpreting their ideas, and reflecting upon their insights. A black line master of the student journal, the corresponding answer key, and reproducible student copy of a KLEW chart appear at the back of the Activity Guide.

Students are indirectly exposed to many careers that require a working knowledge of the science of construction. Such careers are included in a later section of the Activity Guide along with other practical references that are useful in piquing the interest and “inspiring the minds” of these young participants as they explore the world of science.

The activities and topics are as follows:

Activity	Topic
Introduction	Read/hear the Story of Walking Buffalo; use the overlay book to engage in a “grand conversation” about the needs and purposes that lead to the design of objects and structures, and the choices of materials
Activity 1 - Strong Shapes	Compare and evaluate the strength and stability of triangular and square shapes found in traditional and contemporary designs by investigating the forces of tension and compression
Activity 2 - The Materials Have It	Investigate samples of hide, fabric, and man-made materials; test these materials by adding weights to a tester; make hypotheses about the use of these materials to make things
Activity 3 - Staying Connected	Observe, sort, and classify examples of a variety of methods used to join or fasten materials namely, wood, metal, plastic, fabrics, and hide.
Activity 4 – Built for a Purpose	Manipulate the design of traditional modes of transportation using models of dog and horse travois; test the practicality and efficiency of these structures
Activity 5 - What to Use	Use background knowledge of a variety of materials, such as wood, metals, glass, steel, etc., to explain the choices of materials used in the construction of traditional and contemporary objects
Activity 6 – Choices, Choices	Match material samples to, and identify the intended purpose of traditional and modern dwelling/structures
Activity 7 - A Design Masterpiece	Use a Digital Activity to build a tipi; follow the instructions regarding the choices of materials and design; decide whether the tipi is a simple or complex design.