

**ALASKA MANDARIN IMMERSION
ALTERNATIVE SCHOOL**

**Revised
APPLICATION
(Replaces Charter School Application)**

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ALASKA MANDARIN IMMERSION ALTERNATIVE PROGRAM APPLICATION

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A. Description of the educational program including program philosophy and need.

The above designers of the Alaska Mandarin Immersion Program are proposing a school-within-a-school program to be in one of the existing elementary schools.

Mission Statement

The mission of the Alaska Mandarin Immersion is to educate students for an enriched life from immersion in two languages—English and Mandarin.

This mission statement duplicates the ASD mission and was arrived at using input from parent surveys and the Academic Policy Committee.

Program Philosophy

The philosophy of the Alaska Mandarin Immersion is rooted in the belief that the quality of life, both of an individual and a community, are enhanced through language and cultural immersion.

Creating a rich context for language and conceptual learning is a high priority for the Mandarin language immersion program. High educational outcomes are also a high priority for this program. Experience and research show that children will talk with others when age-appropriate and high-interest topics are introduced in a setting in which students are encouraged and facilitated to talk with one another as well as the teachers. The choice and design of Anchorage School District elementary curriculum lends itself very well to just such a setting.

In the Alaska Mandarin Immersion, students will participate in hands-on, inquiry-based activities in science, mathematics, health, social studies, art, music, physical education, reading and language arts. Small and cooperative group instruction in all subject areas will create age-appropriate topics and contexts in which students will want and need to talk to one another in both languages. Students will be taught skills in all subject areas and will learn to work independently, applying their language and conceptual learning in problem solving and writing.

The common language and academic experiences will foster a strong sense of community as children and teachers learn and interact with one another in Mandarin and English. In addition to enriched language and cognitive development, students' cultural awareness will be enriched by focusing on two languages and two cultures. High performance on standard assessment measures will reflect this enriched experience for all students.

Student performance targets in the Mandarin Language Immersion School will be the same as for those students in the regular educational program in Anchorage School District. Students in this school will perform as well or better on standard assessment measures than the district average.

The program is established for all children in the Anchorage School District.

Need

World Languages standards adopted by the State Board of Education state that a student should be able to communicate in two or more languages. The student's knowledge of people and cultures should expand through language study, and the student should possess the language and cultural knowledge necessary to participate successfully in multilingual communities and the international marketplace.

It is well established that second language learning enhances a child's brain development and cognitive skills. Second language acquisition happens best and

most easily when children are young, as demonstrated by the success of ASD's existing Japanese and Spanish immersion programs as well as many immersion schools throughout the country.

At present the Anchorage School District has no Mandarin language immersion programs. Students and their families in Anchorage need a two-way Mandarin immersion program through which they will build a strong community united around the common languages of Mandarin and English. Students will experience themselves as world citizens capable of communicating in both languages and understanding problems from different perspectives.

Mandarin is a good choice of an immersion language for Anchorage, Alaska, because

- Mandarin is the language spoken by the greatest number of people in the world.
- Alaska, Taiwan and the People's Republic of China are Pacific Rim countries, and Taipei, Taiwan, is an Anchorage Sister City.
- China has a long and ongoing contribution to the arts, philosophy and science.
- Taiwan has a strong place in the world economy, and the People's Republic of China is a growing power in the world economy as reflected by the recent trade agreement signed between that country and the United States.

Mandarin is a United States Department of Defense designated "critical language." The critical language designation underscores the national security and business reasons for U.S. citizens to understand the Mandarin language and Chinese culture. Education of our children in Mandarin will prepare them to help our country remain involved in government service and higher education.

Families from three populations within Anchorage will participate in a two-way Mandarin immersion program. They include the estimated 500-plus Chinese speaking families, families with children from China, and others of all backgrounds committed to immersion education.

Because the program is based on a two-way immersion model with roughly the same numbers of native and non-native speakers in each classroom, the school will work closely with Anchorage's Chinese community to build a strong program. At present, 53 native speakers of Mandarin are enrolled in ASD's bilingual program.

Parents of children adopted from China seeking ways to connect their children to Chinese culture and others who value Mandarin, both native and non-native speakers, will be motivated to enroll their children. As of September 1999, approximately 50 adopted Chinese children are living in Anchorage, and many other families are waiting to complete their adoptions in China. The first wave of these adoptees will begin school in the next two years.

Using the ASD's immersion experience as a guide, the school can expect to draw most of its students from families of all backgrounds committed to immersion education. Lengthy waiting lists for ASD's successful immersion programs indicate a widespread appreciation for the benefits of immersion education. Clearly the need exists for an additional immersion program in Anchorage.

Program Goals

APC members used parent surveys and ASD's goals to produce the following Alaska Mandarin Immersion goals:

- to create a safe, supportive school environment in which bilingual language and bicultural practices are honored and encouraged for students and parents;
- to hold high academic standards in all content areas for all students;
- to provide multiple contexts for language learning including the school's academic setting and regularly scheduled field trips into the community;
- to produce functionally proficient speakers of Mandarin Chinese;
- to create a strong sense of community for first language speakers of English and Mandarin;
- to utilize cooperative learning strategies and conflict resolution strategies in classrooms, staff meetings, and school/parent/community meetings.

Curriculum Description

The Alaska Mandarin Immersion will use ASD's adopted curriculum programs and standards as the basis for its instructional program in both English and Mandarin. Mandarin and English speaking teachers will design integrated units of study with science, mathematics and health as the core subjects.

Teachers will make curricular decisions about which sections of the integrated units will be taught in Mandarin and which in English. Rather than split the curriculum along arbitrary lines with some content areas designated for instruction only in Mandarin and others only in English, teachers will take conceptual and language "load" issues into consideration in making instructional decisions. These decisions will be based on experiences in other Asian language immersion schools as well as upon the Mandarin teacher's comfort level teaching certain concepts in Mandarin.

Generally speaking, though, instruction in Mandarin in the core content subjects of science, mathematics, health and some social studies units will create a natural need and desire for students to learn to speak, read and write and use mathematical computation to solve problems in both languages. But, in order to assure that students can also reach high academic performance levels in English, specific skills in reading, language arts, mathematics and science will be taught or reinforced in English.

Music, art and physical education will utilize English and Mandarin for instruction depending upon the focus of the activity. Students will learn dances and songs in both languages. Students will also learn art techniques and art appreciation of both

Asian and western art. Part of the physical education program will be T'ai Chi and Qi Gong, which have a long history for well being and health in the Chinese culture.

In addition to classroom instruction, students will go on regularly scheduled field trips to the public library and other community sites related to the content area they are studying. Field trips into the community will allow students the opportunity to practice their second language learning in a “real” context rather than just the academic one. Instruction on the field trips will be in Mandarin and English.

See Appendix B for a detailed description of the curriculum program.

School Schedule

The Alaskan Mandarin Immersion Program will operate from 8:30 a.m. to 4:30 p.m. The day is extended in order to provide more opportunity for language learning and in order to give teachers ample time to engage students in dual language instruction. The extended day will also allow more time for student and teacher reflection and individual study time.

Teachers' time with the students will be governed by the Anchorage Education Association (AEA) contract section on teacher-student contact time. The additional instructional hours will be covered by teacher aides, the administrator and contracted specialists in art, music and physical education.

Admission Procedures and Transportation

Applicants shall be chosen by random drawing pursuant to ASD lottery procedures, except that the administrator shall preempt the lottery process to ensure a minimum of 40/60 ration of native to non-native speakers of Mandarin within each class.

As in other alternative programs, if students live outside the school's attendance zone, transportation to and from school will be the responsibility of the parents.

B. How the proposed program differs significantly from existing programs.

The Alaska Mandarin Immersion Alternative Program differs from existing programs in the following ways:

- Half of the instructional day will be taught in Mandarin Chinese.
- Designers are proposing a two-way immersion program which will focus also on the needs of native Mandarin Chinese speaking children.
- The instructional day will be designed around an integrated curriculum program with elementary science as its focus.
- Other instructional sites, such as numerous field trip sites, will be used to foster language development in both languages.

C. Statement of the proposed program's philosophy.

See section "A" above.

D. Student population and number of students to be served.

Families from three populations within Anchorage will participate in a two-way Mandarin immersion program. They include the estimated 500-plus Chinese speaking families, families with children from China, and others of all backgrounds committed to immersion education.

Because the program is based on a two-way immersion model with roughly the same numbers of native and non-native speakers in each classroom, the school will work closely with Anchorage's Chinese community to build a strong program. At present, 53 native speakers of Mandarin are enrolled in ASD's bilingual program.

The number of students served in year one will be approximately 40, i.e., 20 full-day kindergartners and 20 first graders. Up to 60 new students will be added in each successive year of operation depending upon availability of space and demand for the program.

E. Proposed site of the program.

The Academic Policy Committee will work closely with the ASD administrative staff and principals to locate a suitable space for the program.

F. Timeline for all major events to accomplish this proposal.

- a. Concept approval by Board in January.
- b. Site selection and community acceptance by early April.
- c. Teacher selection and hiring by mid June.
- d. Professional development for staff during summer.
- e. Begin program Fall 2000.

APPENDIX B

When the Earth Systems Elementary Science Program framework of the Anchorage School District was designed, the Core Team Teachers designed it so that the hands-on science kits could be used as a basis upon which other curriculum areas could quite easily be integrated. Elementary teachers of both science and social studies met to design ways to integrate the two subject areas at each grade level. The math teacher experts have worked on documents showing how ASD's math program can be integrated with the science units. Additionally, the health curriculum was specifically designed to be easily coordinated and integrated with the science curriculum. Many teachers at each grade level in the Anchorage School District have already designed integrated instructional units of study around the science kits and the social studies curriculum. These teachers can serve as a resource for staff in the immersion school.

Mandarin Language Expectations

Oral fluency is the main goal of the Mandarin language segment of the instructional day. Mandarin characters will be taught and students will be taught to read and write in Mandarin, but because age-appropriate performance standards in a second language such as Chinese are not spelled out, the focus in Mandarin, as in the Spanish and Japanese immersion programs, will be on oral fluency. The APC school and staff will work closely with Chinese community members to develop age-appropriate expectations in the Mandarin language.

Program Goals for the Mandarin portion of the school day are for students to:

- be functionally proficient in the Mandarin Chinese language;
- acquire an understanding of and appreciation for Chinese culture;
- create a sense of community with native Mandarin speakers in Anchorage and throughout the world;
- master subject content taught in Mandarin.

Evaluation of the proficiency in Mandarin will include:

- demonstrated mastery of speaking and responding to basic vocabulary;
- demonstrated ability to talk about curriculum content in Mandarin;
- demonstrated willingness to explore, learn and use written characters in Mandarin;
- demonstrated positive attitudes towards Mandarin speaking people and customs.

In addition, as a summative performance evaluation, by the end of sixth grade, students will be expected to be able to research a geographical area of interest in China, plan a trip to that geographical area using skills in reading, writing, math, social skills, problem solving and health related issues. Students and parents will be given the opportunity to go to China at the end of sixth grade. Chinese language

skills throughout the grades will be developed with this end "performance assessment" in mind.

Following is a description of what and how the curriculum standards will be covered in the integrated instructional units kindergarten through second grade:

Kindergarten Curriculum Program

The yearly focus for science in kindergarten is Characteristics. Students study characteristics of themselves and others in the science kit *Myself and Others*, characteristics and motion of balls and ramps in the science kit *Balls and Ramps* and characteristics of earth materials in *Pebbles, Sand and Silt*. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand-alone units.

Unit One: *Myself and Others*

During the integrated study of *Myself and Others*, students will meet curriculum standards from the following content areas taught:

- (a) In science, using process/inquiry skills, students will participate in a comparative study using several human physical characteristics of themselves and others.
- (b) In social studies students will
 - study and learn about nearby places like home, school and neighborhood;
 - compare their own home, school and neighborhoods with others from long ago and far away in the U.S. and China;
 - be introduced to map, globe and timeline skills.
- (c) In health students will
 - identify the five senses;
 - correctly name all the body parts;
 - be introduced to hand washing and care of their own minor wounds and nose bleeds;
 - be introduced to basic safety precautions including 911, memorizing their own name, address and telephone number and where their parents work, if applicable.
- (d) Students taught math in English will
 - learn basic shapes, colors, and sizes, graphing, sorting and classifying and rote counting;
 - recognize numbers 0-20;
 - match objects to numerals;

- be introduced to addition and subtraction problems, estimation and making predictions.
- (e) In language arts students will
- begin to use descriptive words to describe characteristics of themselves, others, places and things;
 - follow simple oral directions;
 - talk to peers, take turns and listen to others;
 - listen to stories and poems;
 - recite poems, rhymes, songs and stories;
 - copy shapes and symbols;
 - continue use of manuscript letter form;
 - use letter sounds to write;
 - write simple words related to the concepts in the content areas
 - use scribbling, pictures and some letters and words to write a story;
 - write their own name;
 - dictate stories related to content areas.
- (f) In reading students will
- learn that print is read from left to right in English and on some occasions from top to bottom in Chinese;
 - enjoy listening to stories and books about themselves and others;
 - explore and show interest in books both fiction and nonfiction;
 - learn the letters of the alphabet;
 - learn common sight words and words related to units of study;
 - learn consonant sounds;
 - continue to identify some vowel sounds;
 - make predictions about stories from shared reading;
 - retell stories with prompting;
 - show an understanding of stories through art, music, play-acting and writing.

Unit Two: *Balls and Ramps*

During the integrated study of *Ball and Ramps*, students will meet curriculum standards from the following content areas taught:

- (a) In science, using process/inquiry skills, students will participate in a comparative of different balls and their interaction with different kinds of ramps and beginning understandings of force and motion.
- (b) In social studies students will
- learn about rules and getting along;
 - learn and use ways of promoting cooperation and reducing conflict;
 - develop cooperation when playing or working with others;
 - use problem solving skills.

- (c) In health students will
- be able to explain why the use of seat belts and helmets is important to their safety and well being;
 - be introduced to basic safety precautions including 911, memorizing their own name, address and telephone number and where their parents work, if applicable.
- (d) Students taught math in English will
- learn basic shapes, colors, and sizes, graphing, sorting and classifying and rote counting;
 - recognize numbers 0-20;
 - match objects to numerals;
 - be introduced to addition and subtraction problems, estimation and making predictions.
- (e) In language arts students will
- begin to use descriptive words to describe characteristics of themselves, others, places and things;
 - follow simple oral directions;
 - talk to peers, take turns and listen to others;
 - listen to stories and poems;
 - recite poems, rhymes, songs and stories;
 - copy shapes and symbols;
 - continue use of manuscript letter form;
 - use letter sounds to write;
 - write simple words related to the concepts in the content areas
 - use scribbling, pictures and some letters and words to write a story;
 - write their own name;
 - dictate stories related to content areas.
- (f) In reading students will
- learn that print is read from left to right in English and top to bottom in Chinese;
 - enjoy listening to stories and books about themselves and others;
 - explore and show interest in books both fiction and nonfiction;
 - learn the letters of the alphabet;
 - learn common sight words and words related to units of study;
 - learn consonant sounds;
 - continue to identify some vowel sounds;
 - make predictions about stories from shared reading;
 - retell stories with prompting;
 - show an understanding of stories through art, music, play-acting and writing.

Unit Three: *Pebbles, Sand and Silt*

During the integrated study of *Pebbles, Sand and Silt*, students will meet curriculum standards from the following content areas taught:

- (a) In science, using science process/inquiry skills, students will study characteristics of various earth materials.
- (b) In social studies students will
 - collect various earth materials from their homes and neighborhoods, run a comparative study of materials and discuss why there may be differences;
 - examine maps and discuss what earth materials may be present in different areas on the map and why that may be so;
 - learn about rules and getting along;
 - learn and use ways of promoting cooperation and reducing conflict;
 - develop cooperation when playing or working with others;
 - use problem-solving skills.
- (c) During this particular unit, health outcomes will be reviewed and reinforced rather than being integrated with the science study. Otherwise, the integration of the two content areas would be a forced fit and not do justice to either curriculum area.
- (d) Students taught math in English will
 - continue reinforcing all skills and concepts learned previously;
 - learn basic shapes, colors and sizes, graphing, sorting and classifying and rote counting;
 - recognize numbers 0-20;
 - count and write numbers to 100;
 - match objects to numerals;
 - be introduced to addition and subtraction problems, estimation and making predictions.
- (e) In language arts students will
 - begin to use descriptive words to describe characteristics of themselves, others, places and things;
 - follow simple oral directions;
 - talk to peers, take turns and listen to others;
 - listen to stories and poems;
 - recite poems, rhymes, songs and stories;
 - copy shapes and symbols;
 - continue use of manuscript letter form;
 - use letter sounds to write;
 - write simple words related to the concepts in the content areas
 - use scribbling, pictures and some letters and words to write a story;
 - write their own name;
 - dictate stories related to content areas.

- (f) In reading students will
- learn that print is read from left to right in English and top to bottom in Chinese;
 - enjoy listening to stories and books about themselves and others;
 - explore and show interest in books both fiction and nonfiction;
 - learn the letters of the alphabet;
 - learn common sight words and words related to units of study;
 - learn consonant sounds;
 - continue to identify some vowel sounds;
 - make predictions about stories from shared reading;
 - retell stories with prompting;
 - show an understanding of stories through art, music, play-acting and writing.

There will also be an application and investigation in science, social studies and health with a specific problem to solve.

First Grade Curriculum Program

The yearly focus for science in first grade is Interrelationships. Students study the interrelationships between Alaskan animals and their environments in the science kit *Alaskan Animals*, study the interrelationships of the mass of an object and its volume in the science kit *Balancing and Weighing*, and study the interrelationships of water, the environment and people in the science kit *Power of Water*. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand-alone units.

Unit One: *Alaskan Animals*

During the integrated study of *Alaskan Animals*, students will meet curriculum standards from the following content areas taught:

- (a) In science, using process/inquiry skills, students will learn the characteristics of what makes an animal an animal and examine the diversity of organisms and their adaptation to the environment.
- (b) In social studies students will
- expand their study about nearby places like home, school and neighborhood to include what Alaskan animals live there, also;
 - continue the comparison of their own home, school and neighborhoods with others from long ago and far away in the U.S. and China by adding animals found in different areas in China;
 - be introduced to map, globe and timeline skills and discuss the concept of extinction related to animals of the past.

- (c) In health students will
- compare parts of their own bodies to parts of animals in the different kingdoms;
 - name the basic effects of pollution on animals and themselves;
 - relate location and function of major body systems in the human body and extend the study to Alaskan animals;
 - explore the interrelationship of nutrition and exercise.
- (d) Students taught math in English will
- identify patterns;
 - find and match equivalent sets;
 - recognize basic geometric patterns;
 - add and subtract single digit numbers;
 - use place value to 100;
 - sort by objects by attributes;
 - practice mental arithmetic.
- (e) In language arts students will
- in both oral and written language, use descriptive words and full sentences to describe interrelationships of themselves, others, places and things;
 - follow simple two- and three-step oral directions;
 - talk to peers and adults;
 - take turns and listen to others and answer questions;
 - listen to stories and poems;
 - recite poems, rhymes, songs and stories;
 - tell and retell stories in a logical order;
 - print legibly to form words, space words and write sentences;
 - correctly spell frequently used words and common, phonetically regular words;
 - share work with others to revise text;
 - write complete sentences related to their own experiences and to the concepts in the content areas.
- (f) In reading students will
- view self as a reader and read on own initiative;
 - enjoy listening to stories and books about Alaskan animals and the environment;
 - explore and show interest in books both fiction and nonfiction using table of contents;
 - be able to identify author, illustrator and title page;
 - build common sight-word vocabulary and words related to units of study;
 - use context strategies and English phonics to decode words;
 - begin to read aloud with fluency;
 - make predictions about stories, events and endings;

- identify fiction and nonfiction;
- relate stories to personal experiences and to other stories with prompting;
- retell stories and series of events with prompting;
- show an understanding of stories through art, music, play-acting and writing.

Unit Two: *Balancing and Weighing*

During the integrated study of *Balancing and Weighing*, students will meet curriculum standards from the following content areas taught:

- (a) In science, using process/inquiry skills, students will examine the properties of matter and begin to recognize the relationship of mass and volume.
- (b) In social studies students will
- learn about rules and getting along;
 - learn and use ways of promoting cooperation and reducing conflict;
 - develop cooperation when playing or working with others;
 - use problem-solving skills.
- (c) In health students will
- identify the purpose of advertising and commercials;
 - using the idea of balance from science, examine the basic effects of choices on health behavior.
- (d) Students taught math in English will
- find and match equivalent sets;
 - recognize basic geometric patterns;
 - add and subtract single digit numbers;
 - use place value to 100;
 - sort by objects by attributes;
 - practice mental arithmetic;
 - explore measuring and measurement.
- (e) In language arts students will
- in both oral and written language, use descriptive words and full sentences to describe interrelationships of themselves, others, places and things;
 - follow simple two- and three-step oral directions;
 - talk to peers and adults;
 - take turns and listen to others and answer questions;
 - listen to stories and poems;
 - recite poems, rhymes, songs and stories;
 - tell and retell stories in a logical order;
 - print legibly to form words, space words and write sentences;
 - correctly spell frequently used words and common, phonetically regular words;

- share work with others to revise text;
 - write complete sentences related to their own experiences and to the concepts in the content areas.
- (f) In reading students will
- view self as a reader and read on own initiative;
 - enjoy listening to stories and books about Alaskan animals and the environment;
 - explore and show interest in books both fiction and nonfiction using table of contents;
 - be able to identify author, illustrator and title page;
 - build common sight-word vocabulary and words related to units of study;
 - use context strategies and English phonics to decode words;
 - begin to read aloud with fluency;
 - make predictions about stories, events and endings;
 - identify fiction and nonfiction;
 - relate stories to personal experiences and to other stories with prompting;
 - retell stories and series of events with prompting;
 - show an understanding of stories through art, music, play-acting and writing.

Unit Three: *Power of Water*

During the integrated study of *Power of Water*, students will meet curriculum standards from the following content areas taught:

- (a) In science, using process/inquiry skills, students will examine the properties of water, experiment and understand that water moves earth materials and is stored in watersheds, recognize the importance of water to every living thing and see that the amount of water affects the number and variety of living things in an area.
- (b) In social studies students will
- learn about rules and getting along;
 - learn and use ways of promoting cooperation and reducing conflict;
 - develop cooperation when playing or working with others;
 - use problem-solving skills.
- (c) In health students will
- identify the purpose of advertising and commercials;
 - using the idea of balance from science, examine the basic effects of choices on health behavior.
- (d) Students taught math in English will
- find and match equivalent sets;
 - recognize basic geometric patterns;
 - add and subtract single digit numbers;
 - use place value to 100;

- sort by objects by attributes;
 - practice mental arithmetic;
 - explore measuring and measurement.
- (e) In language arts students will
- in both oral and written language, use descriptive words and full sentences to describe interrelationships of themselves, others, places and things;
 - follow simple two- and three-step oral directions;
 - talk to peers and adults;
 - take turns and listen to others and answer questions;
 - listen to stories and poems;
 - recite poems, rhymes, songs and stories;
 - tell and retell stories in a logical order;
 - print legibly to form words, space words and write sentences;
 - correctly spell frequently used words and common, phonetically regular words;
 - share work with others to revise text;
 - write complete sentences related to their own experiences and to the concepts in the content areas.
- (f) In reading students will
- view self as a reader and read on own initiative;
 - enjoy listening to stories and books about Alaskan animals and the environment;
 - explore and show interest in books both fiction and nonfiction using table of contents;
 - be able to identify author, illustrator and title page;
 - build common sight-word vocabulary and words related to units of study;
 - use context strategies and English phonics to decode words;
 - begin to read aloud with fluency;
 - make predictions about stories, events and endings;
 - identify fiction and nonfiction;
 - relate stories to personal experiences and to other stories with prompting;
 - retell stories and series of events with prompting;
 - show an understanding of stories through art, music, play-acting and writing.

During other time frames, the following student outcomes will be addressed:

- In health students will be able to identify harmful substances such as drugs, medicines and poisons.
- In social studies students will learn to express feelings in socially acceptable ways.
- In math students will be able to tell time and count money.

Second Grade Curriculum Program

The yearly focus for science in second grade is Cycles. Students study the life cycle of a plant in the science kit *Plant Growth and Development*, study and measure shadows as an alternative method of telling time and understanding the concept of day and night as a cycle in the science kit *Time and Measure* and study soil and how it is formed including the rock cycle and the decomposition of plants in the science kit *Soils*. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand-alone units.

Third Grade Curriculum Program

The yearly focus for science in third grade is Changes of Form. In this year-long study, students will recognize that change occurs over time as a trend, as a cycle or irregularly. They will identify predictable changes such as seasonal change and growth in plants in *Alaskan Plants* section of the yearly study. Students study the changing states of matter in the science kit *Changes of State* and will collect weather data through the year noting change and patterns in the weather in the *Weather* segment of the year-long study. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand-alone units.

Fourth Grade Curriculum Program

The yearly focus for science in fourth grade is Systems. Students will study the skeletal system in the science kit *Bones and Skeletons*, identify parts of a system, isolate variables and predict how changing one variable will affect the system or an experiment in the science kit *Variables* and construct models to explore geological systems including plate tectonics, earthquakes, volcanoes, glaciers and erosions in the science kit *Dynamic Earth*. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand alone units.

Fifth Grade Curriculum Program

The yearly focus for science in fifth grade is Energy Flows. Students study the need for food to provide energy for humans and then use controlled laboratory procedures to test food samples in the science kit *Food Chemistry*, study the application of force and energy transfer in the science kit *Levers and Pulleys* and study electricity as the most common source of energy in the science kit *Circuits and*

Pathways. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand-alone units.

Sixth Grade Curriculum Program

The yearly focus for science in sixth grade is Scale and Structure. Students build a model of an ecosystem in the science kit *Ecosystems*, build structures and examine the relationship of form and function in the science kit *Structures* and study the scale and structure of our solar system in the science kit *Astronomy*. Three integrated units of study will be designed around each of these science kits. Other curriculum outcomes and expectations will be integrated into the science study whenever possible. If curriculum outcomes do not easily integrate with the science studies, then separate units will be taught as stand-alone units.