EDMONTON PUBLIC SCHOOLS

March 23, 2010

TO: Board of Trustees

FROM: E. Schmidt, Superintendent of Schools

SUBJECT: Sakinah Circle Alternative Program

ORIGINATOR: D. Barrett, Assistant Superintendent

RESOURCE

STAFF: Gloria Chalmers, Leanne Fedor, Sandy Forster, Ann Parker, Elisa

Rawe, Jim Ray, Christopher Wright, Bonnie Zack

RECOMMENDATION

- 1. That, subject to sufficient enrolment, the establishment of the Sakinah Circle alternative program for Kindergarten to Grade 6 be approved for implementation beginning in September 2010.
- 2. That the Sakinah Circle alternative program begin the school year four days earlier to provide additional time to accommodate significant Islamic festivals.

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Background: Over the past three years, district staff has been in discussion with parents interested in developing an alternative program that offers the provincial curriculum within a holistic Islamic worldview. Prior to District-level discussions, these parents had registered their children with Edmonton Public Schools at the Argyll Home Education Centre. In the spring of 2007, these parents collaborated with the Argyll Home Education Centre and the Muslim Education Foundation (MEF) to host an enrichment program, *Doorways to Islamic Civilization*, which was offered over eight evenings. Seventy five students and their parents attended the program. Subsequently, representatives of the MEF and the parent group (which later became the Sakinah Society) began work with the District to pursue the goal of an alternative program. In the fall of 2007, an onsite enrichment program was initiated at the Argyll Centre with 21 students. The following year, the Sakinah Circle Pilot started up as a full-day program for Division 1. As the students were enrolled in the District, it has been possible to simultaneously explore ways of integrating the Islamic worldview, develop a curriculum scope sequence, identify appropriate resources and pursue discussions regarding alternative program status.

Rationale for Program: This program is consistent with enabling legislation in the *School Act* for alternative programs and with District criteria. The District, in collaboration with representatives from the Sakinah Society, has developed the necessary documentation to

implement such a program, has sufficient space to offer the program, and the Society has demonstrated demand. The District has developed curriculum documents, including recommended resources, to support the Sakinah Circle alternative program. Through the pilot offered at Argyll Home Education Centre, 40 students are currently involved in the pilot program and 35 are committed to registering in the Sakinah Circle alternative if it is approved. Additionally, 80 families have shown an interest in the program.

Proposed Program: The Sakinah Circle alternative program links the Alberta Program of Studies learning outcomes to the Mission and Vision Statement (Appendix I) for the program by appropriately integrating Qur'anic content and Islamic concepts. The units of study integrate learning, faith and life in order to nourish inner peace and harmony, as the name "Sakinah" suggests. Sample units are provided in Appendix II, a resource list in Appendix III and the entire curriculum document is provided for review in the Trustees' On-line Reading Room. The focus in this alternative program is on transformational learning which addresses the spiritual, intellectual, aesthetic and practical needs of the learner. The program proposes to offer learning activities that harmonize self discipline, courtesy towards all living creatures and stewardship of the environment. Carefully prepared classroom and outdoor learning activities are used to connect students with their natural world and their Creator. This connection is the foundation for encouraging conscientious choices for a wholesome lifestyle. Arabic as a second language instruction, with emphasis on communication and understanding, supports and extends knowledge of the teachings of the Qur'an. The intent is to enable the students to develop an authentically Islamic personality and become a contributing member of the Canadian and world community. Sakinah Circle is nondenominational and non-proselytizing and seeks to reflect the diversity of the community.

The program includes a shortened lunch hour. The time accrued enables the Society to provide learning opportunities for the technical study of the Qur'an during non-instructional time.

Parents seeking enrolment for their child(ren) will be asked to sign a commitment of their support for the vision, mission and integrated objectives of the program.

Admission and Oversubscription: Admission to the program would be consistent with Board regulations on student accommodation, and will be open to all students/families. In cases where the program is oversubscribed, current students and their siblings would have first priority, with remaining places being filled by random selection. In the first year, the intent would be to offer a kindergarten to grade 4 alternative program that would accommodate the students enrolled in the pilot, supplemented by some new enrolments, as well as a new intake in kindergarten.

Staffing: As with all District alternative programs, staffing for the program would be coordinated through Human Resources. The principal would be responsible for the selection of staff and the Sakinah Society will have input into the principal's staff selection process. There is an expectation that the staff in the program meet District hiring criteria, that they support the vision and mission of the alternative program, and are committed to participating in professional development related to the alternative. If a situation were to arise in which the appointment of a principal was required, provision would be made for the Sakinah Society to provide input.

The District teacher supporting the current pilot program at Argyll Home Education Centre has been a representative in the development of this program and is the author of a foundational text, *Concentric Circles, Nurturing Awe and Wonder in Early Learning – A Foundational Approach*. It is anticipated that she would provide curricular leadership should the program be approved. This leadership role is key in introducing the program as staff professional development will be critical during and beyond the implementation stage.

Fees: As noted in the program description, the Sakinah Society intends to provide learning opportunities, during non-instructional time, for the technical study of the Qur'an. The Sakinah Society will be responsible for all arrangements related to the learning of the Qur'an, including the administration of any fees associated with this activity.

Location: The pilot program at the Argyll Home Education Centre currently draws students from many parts of the city but a majority of the students in the pilot are from south east Edmonton. Planning is in the process of reviewing options in this area of the city. If the alternative program is approved, a location in this general area will be confirmed.

Program Establishment Costs: Establishment grant funding for the elementary Sakinah Circle alternative would be consistent with other alternative programs. New alternative programs receive a one-time establishment grant of \$319 per student in the first year, plus \$319 per student for enrolment growth in the second year.

Transportation: If the alternative program is approved, Student Transportation would support the Sakinah Circle program with transportation service for those students whose permanent resident address is outside the neighbourhood walk boundary for the school in which the program is located and within the Sakinah Circle Transportation Service Area set by Student Transportation. Transportation fees would apply for access to service and be consistent with rates for other alternative programs.

Next Steps: If the recommendations are approved, the District will confirm a location for the program. Subsequently, the principal, with input from the Society and assistance from Human Resources, will begin to staff the program, as well as work with the Society to advertize the program.

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Appendix I: Sakinah Circle Alternative Program Vision, Mission and Structure Appendix II: Sakinah Circle Alternative Program Sample Curriculum Documents

Appendix III: Sample Resource List

Sakinah Circle Alternative Circle Program: Vision, Mission & Structure

The Vision:

To provide education that brings us closer to the Creator; through a process of learning based on the Qur'anic worldview, encompassing all curricular disciplines, in order to develop critical minds, conscious hearts, and compassionate human beings; "learning" that will support the lifelong journey to emulate the teachings of the Qur'an.

The Mission:

To provide guidance and an environment that recognizes the learner's "fitrah" (innate nature), nurtures "taqwa" (God consciousness), and cultivates learners who strive to become "khulafah" (vicegerents of Allah).

The Structure:

Fundamental to learning from a Qur'anic worldview is to understand the Qur'anic view of success, which holistically encompasses success in this world and in the Hereafter. Experiencing the world, especially the natural world, with the intention of reading signs of the Creator helps to develop a learning paradigm and worldview shaped by *taqwa*. Bismillah (learning with intention) cultivates an awareness of our place in the world. To this effect, the intent is to strive to be respectful, responsible, and real (authentic, without façade) in every way. Students will be encouraged to develop attitudes of reflection and *sakinah* (tranquility) in an overall learning experience which nurtures spiritual, intellectual, psychological, and social dimensions of the learner. Students and staff will strive for *ihsan* (beauty, excellence, and goodness), bringing quality to every aspect of life.

Learning at Sakinah Circle is sustained and nourished by daily prayers, morning assembly and memorization and recitation of Qur'an. Periodic visits by guest speakers and emphasis on community service further enrich the learning experience of the students. Activities are meaningful and the goal is to transform learners through character development and the attainment of spiritual courtesy and etiquette. Students and teachers at Sakinah Circle are expected to dress for learning in accordance with the principles of the Islamic worldview – with modesty, comfort, simplicity and dignity for oneself and for others. While no uniform code is proposed, students and teachers are expected to respect the basic stated principles. Parents, teachers and students are also expected to respect the diversity of cultures and choices of dress. Sakinah Circle is non-denominational and non-proselytizing and seeks to reflect the diversity of the community.

Curriculum documents for Sakinah Circle address the outcomes of the K-6 Alberta Programs of Study. Units of study are approached thematically, integrating Qur'anic content, Islamic concepts, and Prophetic Tradition where appropriate, to enrich the worldview central to the Islamic way of life. To do this, thematic statements are identified for each General Outcome in each grade level of the Program of Study. Enduring Understandings provide a unifying

concept, these are transferable, and are conceptualized through sustained inquiry during the learning process.

In addition to the stated Enduring Understandings and Alberta Education grade-specific learner outcomes, each curriculum document identifies possible Reflective Questions for teacher and learner consideration. Reflecting on these questions is intended to further integrate aspects of Islam with the Alberta Programs of Study. Reflective questions italicized and in red reflect the Islamic worldview and those in black are more general. Reflective questions serve to orient and direct teacher thinking with two distinct foci: reflective questions encourage both teachers and students to relate and connect aspects of Islam and Islamic civilization with the Program of Studies outcomes; and reflective questions help teachers direct students thinking to the higher levels of Bloom's taxonomy (analysis, synthesis, evaluation) in the Alberta Programs of Study outcomes.

A sample Transfer/Performance Assessment Task has been identified for each general outcome by way of providing an exemplar of a student activity that directly links the Qur'anic worldview or Islamic heritage and the provincial Program of Study. Authentic assessment is seen as a tool to analyze student learning, and as its Latin origin *assidere* (to "sit with") implies, the teacher makes thoughtful observations, balances a variety of assessment techniques, keeps records, offers helpful feedback, and applies the gained knowledge of student learning; formative assessment becomes an integral part of planning the learning process.

ENDURING UNDERSTANDING:

Language is a divine gift to be appreciated

and treated as a trust (amanah).

GRADE LEVEL Kindergarten SUBJECT: Language Arts

General Outcome 1: Explore thoughts, ideas, feelings and experiences

PROGRAM OF STATEMENT Kindergarten Learner Expectations	OSSIBLE REFLECTIVE QUESTIONS
1.1 Discover, Explore Express ideas and develop understanding • share personal experiences prompted by oral, print and other media texts • talk about ideas, experiences and familiar events Experiment with language and forms • talk and represent to explore, express and share stories, ideas and experiences Express preferences • talk about favourite oral, print and other media texts Set goals • talk about own reading and writing expression 1.2 Clarify and Extend Consider the ideas of others • listen to experiences and feelings shared by others Combine ideas • connect related ideas and information Extend understanding • express interest in new ideas and experiences 12.	What is the meaning of sakinah? How can we bring sakinah to our circle? Why do we say Bismillah? Why is it important to make an intention? How does saying "bismillah" bring intention to our actions? How have our personal experiences shaped us? How are our experiences like those of others? Like others in our class? Like others in books we read? How can we learn from and reflect upon our experiences? In what ways can we remember Allah when we express our ideas? Why should we listen to the ideas of others? How will learning about the feelings and ideas of others help us to understand them? How can we learn from and reflect upon the experiences of others? What are goals? How do goals help us? What ahadith teach us about the importance of listening? How do we consider Islamic values and perspectives as we read and view books and resources? How can we make connections with our learning and our faith? How is language a blessing and gift from God?

ENDURING UNDERSTANDING: We have a place in space and time.

GRADE LEVEL: 2 **SUBJECT:** Social Studies

UNIT: 2.2 A Community in the Past

General Outcome

Students will demonstrate an understanding and appreciation of how a community emerged, and of how the various interactions and cooperation among peoples ensure the continued growth and vitality of the community.

COILLII	PROGRAM OF STUDIES	POSSIBLE REFLECTIVE QUESTIONS
	Grade 2	- 0002222 122 2201
	Specific Outcomes	
Value	es and Attitudes	1. How and when did the first Muslims come
Studer	nts will:	to this community and how did they settle
2.2.1	appreciate how stories of the past	and make roots?
	connect individuals and	2. Why did Muslim traders choose to settle in
	communities to the present.	Alberta?
2.2.2	appreciate how Aboriginal and	3. What contact did the first Muslims have
	Francophone peoples have	with Aboriginal people? What did they have
	influenced the development of the	in common? How could they relate?
	student's community	4. What was the role of French language in
2.2.3	appreciate the importance of	Muslim settlement?
	collaboration and living in harmony	5. What difference would language skills make
2.2.4	appreciate how connections to a	for French-speaking Muslims in a
	community contribute to one's	Francophone community?
	identity	6. How did the Muslim community retain its
2.2.5	appreciate how cultural and	spiritual centre with establishment of
	linguistic exchanges connect one	mosques and schools?
	community to another	7. How have Muslim communities changed in
		Alberta?
Know	ledge and Understanding	8. What Muslim leaders have impacted the
Studer	nts will:	political, social, economic, and cultural
2.2.6	analyze how the community being	fabric of the community?
	studied emerged, by exploring and	9. How has the impact of Muslims in the
	reflecting upon the following	community been recognized over time?
	questions for inquiry:	10. How was Al Rashid Mosque established and
	 What characteristics define 	how did it serve its local Muslim
	their community?	community?
	 What is unique about their 	11. How has the community of Lac La Biche
	community?	grown and changed, and how have the
	• What are the origins of their	Muslims influenced this change?
	community?	12. Where does each of us have a place in the
	• What were the reasons for the	continuum of history? How has the past
	establishment of their	given us a place today and what can we
	community (e.g., original fur	learn from the past?

	PROGRAM OF STUDIES	POSSIBLE REFLECTIVE QUESTIONS
	Grade 2	
	Specific Outcomes	
	trade fort, original inhabitants)?	
	 What individuals or groups contributed to the development of their community? 	
2.2.7	 examine how the community being studied has changed, by exploring and reflecting upon the following questions for inquiry: In what ways has our community changed over time (e.g., changes in transportation, land use)? What has caused changes in their community? How has the population of their community changed over time (e.g., ethnic mix, age, occupations)? How have the people who live in the community contributed to change in the community? 	
	 How is the presence of Aboriginal and/or Francophone origins reflected in the community today? 	

SAMPLE TRANSFER / PERFORMANCE ASSESSMENT TASKS:

Research the Oldest Mosque in North America

Al-Rashid Mosque was built by the descendents of Muslim farmers and fur traders in the 1930's. The historic building is now situated in Fort Edmonton Park; the current Al Rashid Mosque is in north Edmonton.

Students will:

- 1) Research early Muslim settlements in Canada to learn about the traders and farmers who came from other lands and how the Muslim community became established in Alberta.
- 2) Interview descendents of the first Muslim families in Edmonton to learn what characteristics defined their community.
- 3) Create a timeline of significant Al Rashid Mosque events, beginning with the establishment of the Muslim community in Edmonton, the erection of the first building, and continuing to the present day.
- 4) Write a short article about the growth and changes of the Al Rashid community over a designated period of time.
- 5) Visit Fort Edmonton Park to see the historic building "in historical context" at the end of the 1920's street. Visit Al Rashid Mosque on 113th Street to see its current situation. Compare the two buildings and the functions they have served.
- 6) Reflect on the importance of the Muslim community in Edmonton in the past. Discuss and write about how the Al Rashid community has changed and how the community has contributed to change in the city of Edmonton over time.

ENDURING UNDERSTANDING: There is harmony in the cosmos.

GRADE LEVEL: Grade 4 SUBJECT: Science

UNIT: Topic C: Building Devices and Vehicles that Move

General Learner Expectations

4-7: Construct a mechanical device for a designated purpose, using materials and design suggestions provided

4-8: Explore and evaluate variations to the design of a mechanical device, demonstrating that control is an important element in the design and construction of that device

PROGRAM OF STUDIES POSSIBLE REFLECTIVE QUESTIONS: **Grade 4 Specific Learner Expectations** 1. Design and construct devices and 1. How were simple machines first used? vehicles that move or have moving 2. How are complex machines composed of parts—linkages, wheels and axles. the combinations of simple machines? 2. Use simple forces to power or propel a 3. How would history be different without device; e.g., direct pushes, pulls, the innovative use of a simple machine? cranking mechanisms, moving air, 4. What is the difference between science moving water and downhill motion. and technology? 3. Design and construct devices and Who were the three Banu Musa brothers of 9th century Baghdad and what were vehicles that employ energy-storing or energy-consuming components that some of their ingenious devices? 6. How did al-Jazari (12th century) make will cause motion; e.g., elastic bands, springs, gravity, wind, moving water. innovative improvements in his designs 4. Recognize the need for control in for water raising machines? mechanical devices, and apply control 7. What devices were designed by mechanisms where necessary. innovative personalities in Islamic 5. Compare two designs, identifying the civilization? relative strengths and weaknesses of 8. What were major Muslim contributions? each. 6. Identify steps to be used in constructing a device or vehicle, and work cooperatively with other students to construct the device or vehicle. 7. Design and construct several different models of a device and evaluate each model, working cooperatively with other students. (Suggested evaluation criteria are identified under the Specific Learner Expectations, Reflect and Interpret.)

SAMPLE TRANSFER / PERFORMANCE ASSESSMENT TASK:

Exploring Ingenuity: Islamic Science and History Fair

Explore the development of scientific and technological innovation understanding something of Muslim contributions in the field of science and technology. Students will:

- 1) Choose a research topic related to simple machines in Islamic science and civilization.
- 2) In guided group discussion, share ideas for related student projects and presentations. Develop their own ideas and voices in their projects.
- 3) Create a demonstration/presentation, either individually or in groups. Share at an Islamic science / history fair. Each project will include written research. Format could be:
 - a 3-dimensional presentation
 - creative writing and performance
 - multi-media
- 4) Participate in a school-wide science fair that includes an interactive learning component facilitated by students.

Ideas can be found at:

http://www.histori.ca/fairs/

http://www.muslimheritage.com

1001 Inventions: Muslim Heritage in Our World by Salim T. S Al-Hassani, 2006

ENDURING UNDERSTANDING: Language is a divine gift to be appreciated and treated as an *amanah*.

GRADE LEVEL: Grade: 6 SUBJECT: English Language Arts

General Outcome 2:

Students will listen, speak, read, write, view and represent to comprehend and respond personally and critically to oral, print and other media texts.

PROGRAM OF STUDIES Grade 6 Specific Outcome

2.1 Use Strategies and Cues Use prior knowledge

- combine personal experiences and the knowledge and skills gained through previous experiences with oral, print and other media texts to understand new ideas and information
- apply knowledge of organizational structures of oral, print and other media texts to assist with constructing and confirming meaning

Use comprehension strategies

- identify, and explain in own words, the interrelationship of the main ideas and supporting details
- preview the content and structure of subject area texts, and use this information to set a purpose, rate and strategy for reading
- use definitions provided in context to identify the meanings of unfamiliar words
- monitor understanding by evaluating new ideas and information in relation to known ideas and information

Use textual cues

- use text features, such as charts, graphs and dictionaries, to enhance understanding of ideas and information
- identify and use the structural elements of texts, such as magazines, newspapers, newscasts and news features, to access and comprehend ideas and information

Use phonics and structural analysis

 use the meanings of prefixes and suffixes to predict the meanings of unfamiliar words in context

POSSIBLE REFLECTIVE QUESTIONS

- 1. When is it possible for another person to explain someone else's actions? Reflect on the Qur'anic story of how Prophet Musa tried to understand Khidr's actions as they traveled together.
- 2. What are similarities and differences in the stories of the different prophets and the message they brought to their people?
- 3. How do I decide which forms of writing and ideas are appropriate to the audience and purpose of my writing?
- 4. What unfamiliar words can I understand by knowing their linguistic background? For example, which English words are rooted in Arabic, or other languages spoken in the Muslim world?
- 5. How can I comprehend seemingly unrelated ideas in the Qur'anic text by understanding thematic threads?
- 6. How can we explore various texts from a variety of genres to enhance our experience of Islamic tradition?
- 7. How can we understand the ways in which the Qur'an describes itself: al-Qur'an (recitation), al-Furgan (criterion), Tanzil (sent

PROGRAM OF STUDIES Grade 6 Specific Outcome

 integrate and apply knowledge of phonics, sight vocabulary, language and context clues, and structural analysis to read unfamiliar words in texts of increasing length and complexity

Use references

 choose the most appropriate reference to confirm the spellings or locate the meanings of unfamiliar words in oral, print and other media texts

2.2 Respond to Texts

Experience various texts

- experience oral, print and other media texts from a variety of cultural traditions and genres, such as autobiographies, travelogues, comics, short films, myths, legends and dramatic performances
- explain own point of view about oral, print and other media texts
- make connections between own life and characters and ideas in oral, print and other media texts
- discuss common topics or themes in a variety of oral, print and other media texts
- discuss the author's, illustrator's, storyteller's or filmmaker's intention or purpose

Construct meaning from texts

- observe and discuss aspects of human nature revealed in oral, print and other media texts, and relate them to those encountered in the
- community
- summarize oral, print or other media texts, indicating the connections among events, characters and settings
- identify or infer reasons for a character's actions or feelings make judgments and inferences related to events, characters, setting and main ideas of oral, print and other media texts
- comment on the credibility of characters and events in oral, print and other media texts, using evidence from personal experiences and the text

POSSIBLE REFLECTIVE QUESTIONS

- down), Dhikr (remembrance), al-Kitab (book), al-Nur (light), al-Huda (guidance), Rahmah (mercy), Majid (glorious), Mubarak (blessed), Nadhir (warner), Bashir (glad tidings)?
- 8. How are the qasas (stories) of prophets in the Qur'an retold in different ways in various forms of text and media?
 - translations from the Qur'an
 - storybooks for children
 - poetry
 - animated cartoons
 - movies
- 10. How do the different media emphasize different aspects of the stories? Do the different stories still have the same content, message, and intent?

PROGRAM OF GRANDING	DOGGINA D DENY D GENYE
PROGRAM OF STUDIES	POSSIBLE REFLECTIVE
Grade 6	QUESTIONS
Specific Outcome	
Appreciate the artistry of texts	
explain how metaphor, personification and	
synecdoche are used to create mood and	
mental images	
experiment with sentence patterns, imagery	
and exaggeration to create mood and mental	
images	
discuss how detail is used to enhance	
character, setting, action and mood in oral,	
print and other media texts	
2.3 Understand Forms, Elements and	
Techniques	
Understand forms and genres	
identify key characteristics of a variety of	
forms or genres of oral, print and other media	
texts	
discuss the differences between print and	
other media versions of the same text	
Understand techniques and elements	
• discuss the connections among plot, setting	
and characters in oral, print and other media	
texts	
• identify first and third person narration, and	
discuss preferences with reference to familiar	
texts	
• explore techniques, such as visual imagery,	
sound, flashback and voice inflection, in oral,	
print and other media texts	
• identify strategies that presenters use in media	
texts to influence audiences	
Experiment with language	
alter words, forms and sentence patterns to	
create new versions of texts for a variety of	
purposes; explain how imagery and figurative	
language, such as personification and	
alliteration, clarify and enhance meaning	
2.4 Create Original Text	
Generate ideas	
• choose life themes encountered in reading,	
listening and viewing activities, and in own	
experiences, for creating oral, print and other	
media texts	
Elaborate on the expression of ideas	
1	

PROGRAM OF STUDIES Grade 6	POSSIBLE REFLECTIVE QUESTIONS
Specific Outcome	
• use literary devices, such as imagery and	
figurative language, to create particular	
effects	
Structure texts	
 determine purpose and audience needs to 	
choose forms, and organize ideas and details	
in oral, print and other media texts	
• express the same ideas in different forms and	
genres; compare and explain the effectiveness	
of each for audience and purpose.	

SAMPLE TRANSFER / PERFORMANCE ASSESSMENT TASK:

Exploring Primary and Secondary Texts: How is the story told?

Students will:

- 1. a) Read a variety of texts that tell the same story of the prophets in:
 - Qur'anic text
 - translation of the Qur'an
 - storybooks for children
 - poetry
 - animated cartoons
 - movies
 - b) In guided group discussion, explore and classify variations on the same story/stories. Identify the original stories and the added details. Critique embellishments various authors have added and report on these. Distinguish between primary and secondary sources.
- 2. a) Choose one prophet and read the *ayat* in the Qur'an which refer to the story of this particular prophet. For example, the story of Prophet Nuh and the flood appears in at least 13 different places in the Qur'an; each time different aspects of the story are told. Refer to *Lives of the Prophets* by Elma Harder, 1999.
 - b) Use various reference tools like Qur'anic dictionaries, concordance, online search tools and websites to investigate primary sources.
 - c) Identify metaphor used in the Qur'an and examine and explain literary devices employed by authors in re-telling the stories in other texts.

ENDURING UNDERSTANDING: Signs and symbols point us to our Creator and Sustainer.

GRADE LEVEL: Grade 6 SUBJECT: Mathematics

STRAND: Shape and Space (Measurement)

General Outcome: Use direct and indirect measurement to solve problems.

PROGRAM OF STUDIES	POSSIBLE REFLECTIVE QUESTIONS
Grade 6	TOSSIBLE REFLECTIVE QUESTIONS
Specific Outcome	
 Demonstrate an understanding of angles by: identifying examples of angles in the environment classifying angles according to their measure estimating the measure of angles, using 45°, 90° and 180° as reference angles determining angle measures in degrees drawing and labeling angles when the measure is specified. [C, CN, ME, V] Demonstrate that the sum of interior angles is: 180° in a triangle 360° in a quadrilateral. [C, R] Develop and apply a formula for determining the: perimeter of polygons area of rectangles volume of right rectangular prisms. [C, CN, PS, R, V] 	 How do angles in the natural environment balance and harmonize? What environmental angles can I recognize approximately without measuring them? How is the measurement of angles related to the measurement of time? Why was it important to be able to measure the shadows and the angle of the sun's rays to determine the time for zuhr and asr salah? Why do we need to measure angles? Is it helpful to measure angles?

SAMPLE TRANSFER / PERFORMANCE ASSESSMENT TASK:

The Islamic Garden

The garden in Islam is a symbol of paradise and is an important Islamic architectural feature.

Students will:

- 1) Reflect on Islamic aesthetics, gardens and nature. "Surely the God fearing shall be among gardens and fountains. (al-Dhariyat 51:15). Read the description of Jannah in Surah Muhammad 47: 15.
- Research information online about how Islam inspired a passion for gardening, as witnessed in early Islamic civilization. http://muslimheritage.com/topics/default.cfm?ArticleID=654
- 3) Examine photos and plans of Islamic gardens in several places in the world. Investigate how the floor plan of a traditional house in Fez or other old Islamic city would be built around a central garden.
- 4) Draw a garden plan on grid paper, calculate and label the angles, perimeter and area of the different quadrants and of the total garden.
- Construct a model of the inner garden of a traditional house using building blocks.
 Make templates of 45°, 90° and 180° to use as reference angles in aligning the walls and checking the corners.
 - a. Note and label the four garden quadrants, the centre fountain, surrounding residential rooms and outer wall. Display the information.
- 6) In group discussion, consider how to incorporate elements of an Islamic garden in an outdoor classroom. If possible, implement an aspect of the Islamic garden in the school's naturescape.

For background information on symbolism in the Islamic garden, see *The Art of the Islamic Garden* by Emma Clark, 2004.

SAMPLE RESOURCE LIST

LITERATURE CONNECTIONS TO MATHEMATICS

Demi. 1997. A Grain of Rice, a mathematical folktale. Scholastic.

When offered a reward for a good deed, Rani asks only for one grain of rice, doubled each day for 30 days.

Knowles, Kathy. 2008. One Little Crab: a counting book from Ghana. Osu Children's Library.

A colourful counting book for first readers with photos from the daily life of children in Ghana.

Haskins, Jim. 2004. *Count Your Way Through the Arab World*. Lerner Publishing. Counting from one to ten, each double-page spread shows the number in Arabic calligraphy, the word for it, the pronunciation, illustration, and a brief descriptive paragraph.

Schwartz, David, 1985. How Much is a Million? HarperCollins.

Steven Kellog's lively and surprising illustrations help the reader to conceptualize what at first seems inconceivable.

Tahan, Malba. 1993. *The Man Who Counted: A collection of mathematical adventures*. Norton.

The adventures of Bremiz Samir take the reader on a journey in which he summons his extraordinary mathematical powers to settle disputes, give wise advice, overcome dangerous enemies, and win for himself rich rewards. His stories explore the history of famous mathematicians who preceded him.

http://www.migel.com/fractals math patterns/

LITERATURE CONNECTIONS TO SCIENCE

AbuBakar, Shahbatun and Nordin Endut. 2004. A Drop of Mercy, The Water Cycle. Islamic Foundation.

Where does a drop of water go? Computer-generated illustrations with simple text.

Al-Hassani, Salim T.S. 2006. *1001 Inventions: Muslim Heritage in Our World*. Foundation for Science, Technology and Civilisation.

This beautiful guidebook unfolds the golden age of civilization from 600 to 1600 CE in areas of science and culture. Text is accessible, well illustrated with timelines and charts.

Base, Graeme. 2001. The Water Hole. Harry N. Abrams.

A counting book of animals that assemble at the waterhole, whose only hope now is a drop of rain on the parched earth.

Baylor, Byrd. 1975. *The Desert is Theirs*. Atheneum Books. Illustrated by Peter Parnall. This book speaks about people and their closeness to the land, not to own the land but to share it.