

WHAT'S TELUS SPARK ALL ABOUT?  
**SPARKING CURIOSITY.**

TELUS  
**Spark\***  
THE NEW SCIENCE CENTRE

# SCHOOL PROGRAM GUIDE

*2011/2012*



# WELCOME!

## 2011/2012 SCHOOL PROGRAM GUIDE

### WHAT A JOURNEY!

We started our journey with the education community of Calgary over 40 years ago, and your dedicated support continues to be warmly appreciated.

We are incredibly proud to share with you a new program of interactive learning experiences, designed to compliment our four new exhibit galleries and an expanded and enhanced *Creative Kids Museum*.

### WHO ARE WE TODAY?

Our new facility ignites creativity. Our Facilitators fuel curiosity. Our school programs spark a passion for learning that we wholeheartedly share and embrace.

Learning is a way of being in the world, of seeing possibilities in adversity, of encouraging active citizenship and leadership, of developing new skills, self-confidence and hope.

At TELUS Spark, the new Science Centre, programs, and exhibits, will allow students to discover new worlds and ways to advance our community, to become entrepreneurs and artists, to encourage debate and discussion, to unravel the mysteries of the natural world and to embrace the curiosity that resides in all of us.

Through their experiences with us, students will develop and practice the skills needed to make an impact in our world, and for our future.

### WHAT CAN YOU EXPECT?

Our new programs have been tested extensively in schools across Calgary and are inspired by recent research in inquiry-based learning. They are relevant to the Alberta Program of Studies, with strong connections to our daily lives. We provide the space and tools to foster questioning and exploration. You and your students bring your unique perspectives, passion, and creativity.

We look forward to having you join us on an inspiring journey through the overlapping worlds of science, art and technology.

Sincerely,



Julie Bowen  
Vice President, Content

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## WHAT WILL YOUR STUDENTS EXPERIENCE?

TELUS Spark offers a richer and more involved experience for teachers and students. Our four new exhibit galleries and an expanded and enhanced Creative Kids Museum allow for a larger range of spaces and activities to explore.

Our new school workshops will provide hands on, in-class experiences, designed to encourage open-ended exploration, inquiry and participatory investigation by your students.

Our new live demonstration programs connect students to exciting phenomena, explorations and experiments that could not happen in a classroom.

Our new live science theatre programs help younger students find connections between science and creativity in a safe and dynamic atmosphere.

*Due to the expected high demand for our school workshops, live theatre and demonstrations, we would request that you only book one program per class.*

## CALLING ALL VOLUNTEERS!

### GALLERY GUIDE VOLUNTEERS

Do you know a student aged 14 to 25 looking to get involved in our community? Help visitors get the most out of TELUS Spark experience!

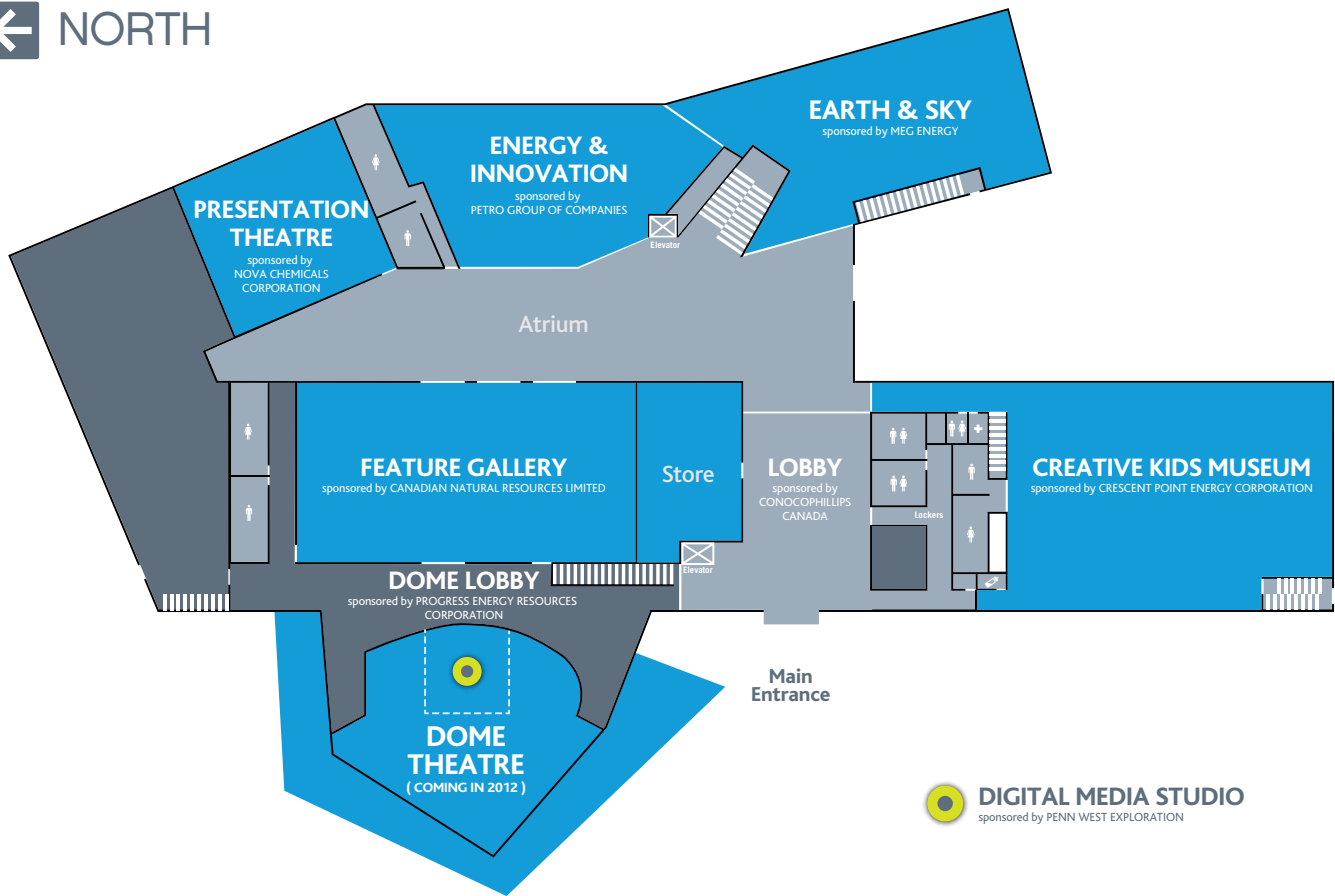
POSITIONS ARE AVAILABLE YEAR-ROUND.

### CAMP VOLUNTEERS

Do you know someone looking to work with children and gain volunteer hours over the summer? Join our summer camp team!

POSITIONS ARE AVAILABLE JULY-AUGUST 2012.

**CONTACT US AT 403.817.6800**



## WHAT'S NEW?

Welcome to our new facility, built to achieve **Leadership in Engineering and Environmental Design (LEED) Gold Certification** and with the ultimate learning and discovery experiences in mind.

## WE'RE ENVIRONMENTALLY SUSTAINABLE

Here are just a few ways TELUS Spark is environmentally sustainable. We have:

- advanced systems that capture and use storm water to flush our toilets
- lighting control systems with occupancy sensors
- radiant heating panels in the floors and ceilings
- a facility with easy access to Calgary's bike paths and LRT system
- reduced paper use by going digital more often – including the publication of this guide.

Support our green initiatives by ensuring your class either brings Litter-Free Lunches when you visit, or enjoys the many healthy options available for purchase in our Café.

## WE'RE ACCESSIBLE TO EVERYONE

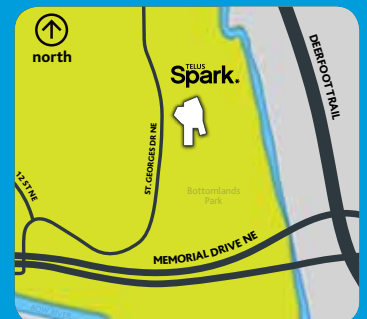
TELUS Spark is wheelchair accessible throughout the entire building. Our classrooms, theatres, galleries and the Atrium are welcoming for people of all abilities.

## WHERE ARE WE?

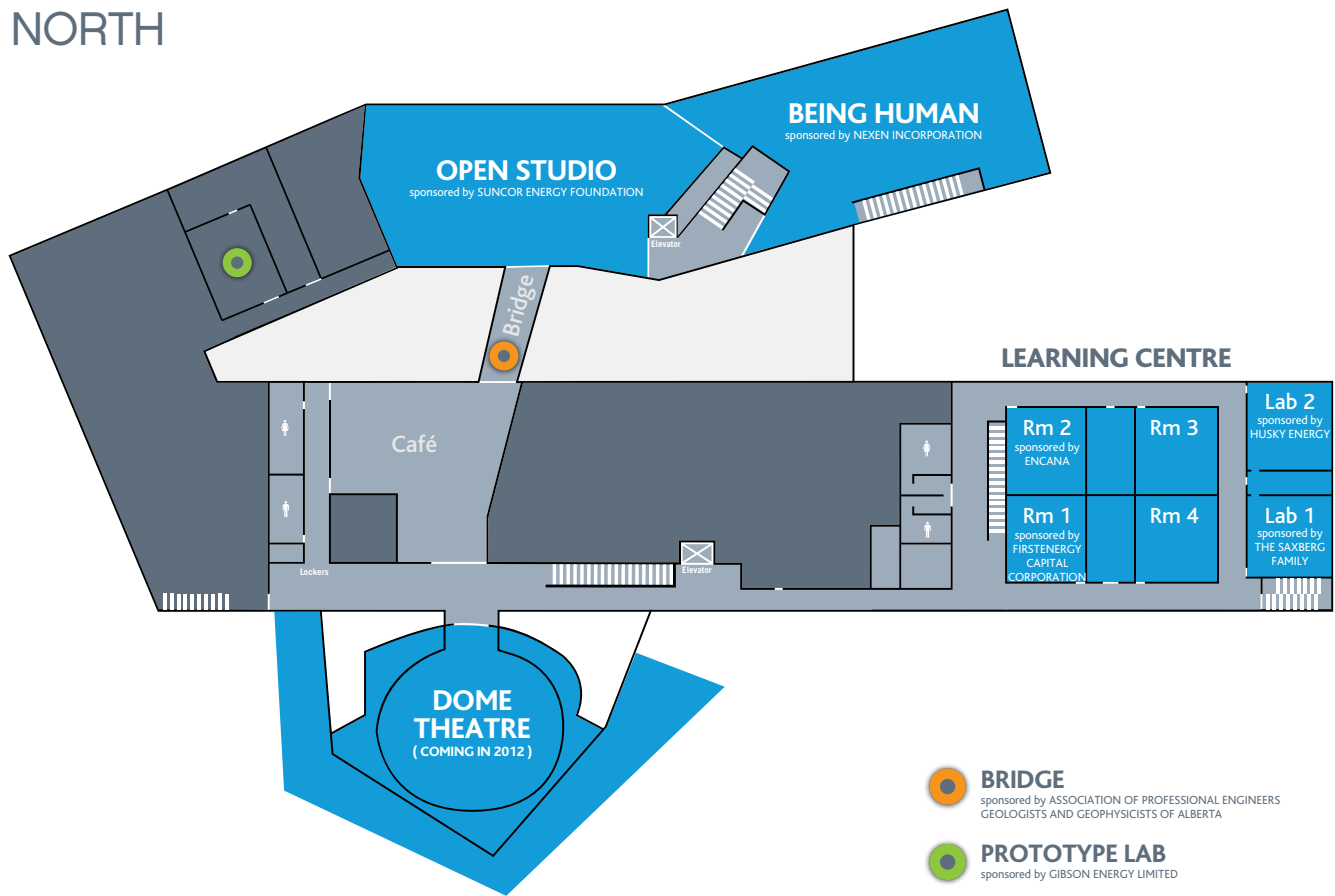
### OUR LOCATION

Located near the junction of Deerfoot Trail and Memorial Drive, with access from St. George's Drive, our new location is easily accessible to all of Calgary.

Our facility is conveniently located just moments away from Calgary's bike paths and the LRT station.



[CLICK HERE for larger map](#)



\* Call 403.817.6802 to book our Portable Planetarium for your class prior to the opening of Calgary's only HD digital Dome Theatre in Spring 2012. Programs are available in every division.

## THANK YOU TO OUR MANY COMMITTED SPONSORS

- Educational Program Development sponsored by IMPERIAL OIL FOUNDATION
- Open Studio, sponsored by SUNCOR ENERGY FOUNDATION
- Being Human, sponsored by NEXEN INCORPORATION
- Earth & Sky, sponsored by MEG ENERGY
- Energy & Innovation sponsored by PETROBANK GROUP OF COMPANIES
- Creative Kids Museum, sponsored by CRESCENT POINT ENERGY CORPORATION
- Presentation Theatre sponsored by NOVA CHEMICALS CORPORATION
- Digital Media Studio, sponsored by PENN WEST EXPLORATION
- The Bridge sponsored by APEGGA THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA
- Feature Gallery, sponsored by CANADIAN NATURAL RESOURCES LIMITED
- Dome Lobby, sponsored by PROGRESS ENERGY RESOURCES CORPORATION
- Lobby, sponsored by CONOCOPHILLIPS CANADA
- Prototype Lab, sponsored by GIBSON ENERGY LIMITED
- Room 1, sponsored by FIRSTENERGY CAPITAL CORPORATION
- Room 2, sponsored by ENCAN
- Lab 1, sponsored by THE SAXBERG FAMILY
- Lab 2, sponsored by HUSKY ENERGY
- Youth Environmental Programming, sponsored by TD
- Sustainability Partner DEVON CANADA CORPORATION

[CLICK HERE](#) to learn more about all of our sponsors and how you can get involved.

# HOW DOES TELUS SPARK CONNECT TO MY CURRICULUM?

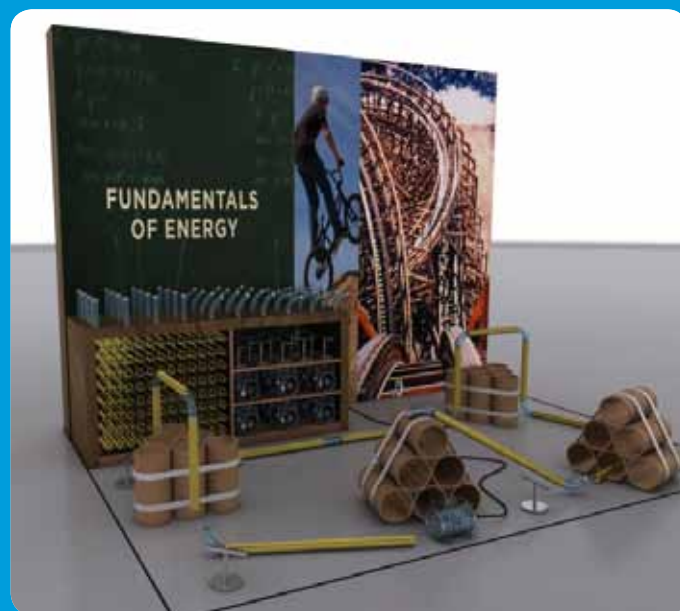
## GUIDING UNIQUE LEARNING EXPERIENCES, TOGETHER

At TELUS Spark, we will work with educators and parents to take learners on a journey that allows them to question and challenge, discover and grow, collaborate in new ways to solve problems, and ultimately develop a passion for learning about science, art and technology.

All of our programs and exhibits have been tested with hundreds of Calgary students and teachers, a process that we look forward to continuing as we move forward.

What, and how, you will learn at TELUS Spark has been inspired by recent research in inquiry-based learning, as well as the ***21st Century Learning Skills Report for Museums***.

The programs and exhibits are platforms for multiple learning outcomes, rooted in authentic science and current technology. Within this framework, students will explore their own questions and develop their own solutions. In our workshops, students will participate in collaborative activities that place an emphasis on the processes of science and creativity, concentrating on developing skills, attitudes and behaviours that are integral to growth back in the classroom and in their future lives and careers.





# 1 OPEN STUDIO

sponsored by **SUNCOR ENERGY FOUNDATION**

Created for teens, with teens. The Open Studio gallery encourages visitors to take creative risks, question assumptions and explore new ways of thinking, ultimately inspiring confidence and stretching their creative muscles in unexpected directions.

Students will put their imagination in action, to:

- build kinetic sculptures
- design fashion creations from unexpected materials
- compose a musical symphony with colour, or become a musical instrument themselves
- digitally paint with light
- create animations using stop motion techniques\*.

\*Digital content can be a self-expression by the students, or determined by the educator to align to concepts from the classroom. Select digital content can be saved and accessed by the students from school or home. All content created and saved at the New Science Centre is licensed under Creative Commons, and may be used for promotional purposes.

Science	Curriculum Connections
Grade 1	Building Things
Grade 3	Hearing and Sound; Building With A Variety of Materials
Grade 4	Light & Shadows
Grade 9	Electrical Principles And Technologies
Art	Curriculum Connections
Grades 1, 2	Drawing; Assessment; Craftsmanship
Grades 3, 4	Drawing; Assessment; Expression
Grades 5, 6	Drawing; Depiction; Craftsmanship
Grades 7, 8, 9	Drawings; Record; Communication; Components
ICT	Curriculum Connections
Grades 1, 2, 3	Nature of Technology; Moral and Ethical Approaches; Compose; Revise and Edit Text; Communicate Through Multimedia; Integrate Various Applications
Grades 4, 5, 6	Aid Collaboration During Inquiry; Discerning Consumers of Mass Media And Electronic Information; Compose, Revise, and Edit Text; Communicate Through Multimedia
Grades 7, 8, 9	Nature of Technology; Moral and Ethical Approach to Use of Technology; Communicate Through Multimedia

# 2 BEING HUMAN

sponsored by **NEXEN INCORPORATION**

The Being Human gallery encourages students to explore what it truly means to be human by investigating the most fascinating people on earth: friends, family, classmates, and themselves. They will build their confidence and dramatic skills by telling their stories, asking questions and exploring ideas.

Students will consider a range of questions and activities, including:

- How your heart responds to running a marathon
- What happens in your brain when you fall in love
- How your fingertips reveal your stress level
- How you use your whole body to express emotions

All of these exhibits will help build your students' critical thinking and communication skills, all through a series of experiments that reveal what we have in common, and what makes each of us unique.

\*Please note that this gallery contains an exhibit area that relates to human sexuality, including reproduction, anatomy, puberty and contraception.

Science	Curriculum Connections
Grade 1	Senses
Art/Drama	Curriculum Connections
Grades 1, 2	Appreciation; Actions & Viewpoints; Qualities & Details
Grades 3, 4	Appreciation; Main Forms and Proportions; Actions and Viewpoints; Expression
Grades 5, 6	Appreciation; Expression
Grades 1, 2, 3, 4, 5, 6	Structured Dramatic Play (Physical; Intellectual; Emotional; Social; Integrative); Dramatic Movement; Storytelling
Grades 7, 8, 9	Speech; Improvisation/Acting
Social Studies	Curriculum Connections
Kindergarten:	I Am Unique
Health & Life Skills	Curriculum Connections
Grades 1, 2, 3	Relationship Choices
Grades 4, 5, 6, 7, 8, 9	Wellness Choices; Personal Health
CALM 20	Personal Choices



## 3 EARTH & SKY

sponsored by MEG ENERGY

We are all linked to the Earth and the sky, through the systems of our world and our own daily lives. In the Earth & Sky gallery, students will investigate Alberta's unique geology, landscapes, weather and climate, and the forces that connect them. Without ever leaving the gallery, they will:

- explore the power of erosion
- build rapids, dams and irrigation channels
- create audio storms
- explore landslides, avalanches and unique locales of the province
- create constellations across an Albertan night sky
- discover the trace of our seasons on the sky and the senses.

From deep within the Earth out to space, students will make observations and draw connections, applying the lessons learned from the Albertan landscape to the features of other worlds, all while developing and applying skills in collaboration, experimentation and observation.

Science	Curriculum Connections
Grade 1	Seasonal Changes; Building Things
Grade 2	Exploring Liquids; Buoyancy and Boats
Grade 3	Rocks and Minerals; Testing Materials And Designs
Grade 4	Light And Shadows
Grade 5	Weather Watch
Grade 6	Sky Science
Grade 7	Planet Earth; Interactions And Ecosystems
Grade 8	Freshwater and Saltwater Systems
Grade 9	Space Exploration
Art	Curriculum Connections
Grades 1, 2	Reflection; Depiction
Grades 3, 4, 5, 6	Reflection; Expression
Social Studies	Curriculum Connections
Grade 2	Canada's Dynamic Communities
Grade 4	Alberta: A Sense of the Land; Alberta: Celebrations and Challenges
Grade 5	Physical Geography of Canada

## 4 ENERGY & INNOVATION

sponsored by PETROBANK GROUP OF COMPANIES

Energy is about transformation: from one form to another, from one use to another. In this gallery students will explore some of the fundamental principles of energy (conservation of energy, momentum, and gravity), while engaging in activities that build key skills for the future, including collaboration, problem solving, communication, observation and a willingness to experiment.

Students can:

- build and test wind turbines
- try and balance an electricity grid
- discover connections between gravity and potential energy
- consider the challenges of building oil and gas pipelines.

Science	Curriculum Connections
Grade 1	Building Things
Grade 2	Exploring Liquids
Grade 3	Building with a Variety of Materials
Grade 4	Wheels and Levers; Building Devices and Vehicles That Move
Grade 5	Electricity and Magnetism
Grade 6	Air and Aerodynamics
Grade 7	Heat and Temperature; Structures and Forces
Grade 8	Mix and Flow of Matter; Light and Optical Systems; Mechanical Systems
Grade 9	Environmental Chemistry; Electrical Principles and Technologies
Art	Curriculum Connections
Grades 1, 2	Assessment
Social Studies	Curriculum Connections
Grade 6	Citizens Participating in Decision Making



## 5 CREATIVE KIDS MUSEUM

sponsored by CRESCENT POINT ENERGY CORPORATION  
*Designed specifically for Division 1 classes or students  
 years 8 and under.*

The Creative Kids Museum is a celebration of the joy and growth that comes from creative play, art and exploration. Enjoy a new water area abstracted from the Bow River, a giant climbing structure that enhances gross motor skills and a theatre dedicated to dramatic play. Opportunities for educators and children abound. Take time in the reading nook, contribute to community artworks, build mosaics or sculptures, explore structures and materials as you build an imaginary fort, or create whirligigs to blow and move in our new wind table, all in a safe and sensory rich environment.



## 6 PRESENTATION THEATRE

sponsored by NOVA CHEMICALS CORPORATION

This 150-seat Presentation Theatre is a high-tech venue that takes learning out of the classroom and onto the stage. Live demonstration programs connect students to exciting phenomena, explorations and experiments that could not happen in a classroom. Live science theatre programs help younger students find connections between science and creativity in a safe and dynamic atmosphere.

**We can host special events,  
 lectures, theatrical performances  
 and small concerts in the  
 Presentation Theatre!  
 Call 403.817.6800 to book.**

## 7 LEARNING CENTRE

With four classrooms and two laboratory spaces, the Learning Centre provides an environment built to provide focused, educator lead programs for all age ranges that take advantage of a rich array of resources and equipment.

## 8 HD DIGITAL DOME THEATRE

Opening in Spring 2012, TELUS Spark will house Calgary's only HD digital Dome Theatre, where audiences of 230 will enjoy uniquely immersive film experiences.

	Curriculum Connections
Kindergarten	Creative Expression; Early Numeracy – Shape And Space; Patterns and Relations; Physical Skills and Well-Being; Develop Basic Locomotor; Non-Locomotor and Fine Motor Skills; Activities In Alternative Environments; Early Literacy
Science	Curriculum Connections:
Grade 1	Creating Colour; Senses; Building Things
Grade 2	Exploring Liquids; Buoyancy And Boats
Grade 3	Building With A Variety Of Materials; Testing Materials And Design; Hearing and Sound
Art	Curriculum Connections:
Grades 1, 2, 3	Reflection (Analysis, Assessment); Depiction (Qualities, Details); Composition (Unity, Craftsmanship); Expression (Media, Techniques)
Mathematics	Curriculum Connections:
Grades 1, 2, 3	Shape And Space; Patterns And Relations
Physical Education	Curriculum Connections:
Grades 1, 2, 3	Activity In Alternative Environments

## PROGRAMS

# K-3

### WHAT DO I NEED TO KNOW?

**CLASS MAXIMUM:** 30 Students.

**PRICES:** Prices are per class, and are exclusive of any applicable GST.

Classes over 30 students will be charged:

- 60 min programs: \$10 per additional student
- 90 min programs: \$12 per additional student
- Live Theatre / Demonstrations: \$10 per additional student

All workshops include access to the exhibition galleries.

**CHAPERONES:** Students must be accompanied by a chaperone at all times.

- K-6: 1 per 5 students
- 7-12: 1 per 10 students

Additional chaperones will require a \$10 admission fee.

Some programs available in French or Spanish. Contact us to learn more.

#### EXPERIENCES KEY

WORKSHOPS

LIVE THEATRE/DEMONSTRATIONS

DISCOVERY DOME FILMS  
(coming in 2012)

**Ask us about our Membership Program and facility rental availability.**

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E: info@sparkscience.ca

### JUNIOR ARCHITECTS

1-3 60 min \$225 / class

**CONNECTIONS:** Building Things; Building with a Variety of Materials; All science skills outcomes

**SKILLS:** Problem Solving, Collaboration, Creativity

Starting with an inspiring story of a budding young architect, students will use materials to create a nearly life-size structure they would want in their community.

Gallery Connection: Creative Kids Museum



### SENSORY WONDERS

K-1 60 min \$225 / class

**CONNECTIONS:** Senses

**SKILLS:** Problem Solving, Self-Direction

Learn some incredible things about your senses, how they can trick you, and why we need to protect them.

Gallery Connection: Creative Kids Museum

### CREATING COLOUR

K-3 30 min \$225 / class

**CONNECTIONS:** Creative Expression; Creating Colour; Science Inquiry; Testing Materials and Designs

Ron wants to be a world famous inventor, but he needs help learning how to invent. Using his hero Leonardo Da Vinci's method of inquiry and investigation as a guide, and with the aid of the audience, he will learn to ask questions and discover what's special about the world around him.

Gallery Connection: Creative Kids Museum

### HISTORY OF WESTERN MUSIC

K-3 30 min \$225 / class

**CONNECTIONS:** Music; Drama

What is music, and where did it come from? Join Pat as he travels through time, exploring the origins of our favourite music. With help from the audience, sing and dance your way through 900 years of musical history.

Gallery Connection: Creative Kids Museum

### MAKING MIXTURES

K-1 60 min \$225 / class

**CONNECTIONS:** Science Inquiry

**SKILLS:** Critical Thinking & Systems Thinking, Scientific Literacy

Take a step into the delightful world of chemistry. By pouring and scooping, students will create various mixtures and use their senses to describe what is happening.

Gallery Connection: Energy & Innovation

*"Students love using creativity and knowledge to build, hands on. It's a great way to use scientific process and to experiment."*

—Grade 3 teacher

## HOT OR NOT

2 60 min \$225 / class

**CONNECTIONS:** Hot and Cold Temperature

**SKILLS:** Critical Thinking; Curiosity

Can you see heat? Why do things feel cold? Students will explore questions about temperature as they conduct investigations throughout our facility.

Gallery Connection:  
Energy & Innovation, Earth & Sky



## NEW KID IN TOWN

K-3 30 min \$225 / class

**CONNECTIONS:** Creative Expression; Early Literacy; Rocks and Minerals; Environment; Community Awareness

Eugene has just moved to Calgary with his parents. Together, your students will help Eugene figure out what is unique about Calgary, what it means to be a Calgarian and how special the environment of the foothills of Alberta truly is. Can you convince Eugene to stay?

Gallery Connection:  
Earth & Sky, Creative Kids Museum

## FLOATING AND BOATING

2 60 min \$225 / class

**CONNECTIONS:** Buoyancy and Boats

**SKILLS:** Creativity and Innovation; Critical Thinking; Problem Solving

Students explore the buoyancy of a variety of materials, predicting and testing whether objects will float. They will also build a boat and test its load carrying capabilities.

Gallery Connection: Earth & Sky

## CREATE AND ANIMATE

2-3 60 min \$225 / class

**CONNECTIONS:** ICT - Operating, Communicating, Composing, Editing

**SKILLS:** Curiosity; Information and Media Literacy

Discover your inner animator! Using the innovative **SCRATCH** programming environment from MIT, students will express their imagination through creating and programming their own animation.

Gallery Connection: Open Studio

## BALL RUNS

3 60 min \$225 / class

**CONNECTIONS:** Testing Materials and Design, Building with a variety of materials

**SKILLS:** Creativity and Innovation; Communication and Collaboration

Students will apply their creativity and problem solving skills by designing and building their own marble runs to meet a series of challenges.

Gallery Connection: Energy & Innovation

## COMING IN 2012!

### CALGARY'S ONLY HD DIGITAL DOME THEATRE

where audiences of 230 will enjoy uniquely immersive film experiences.

**CLICK HERE** to be the first to hear about it!

## BUILDING FOR SOUND

3 60 min \$225 / class

**CONNECTIONS:** Building With a Variety of Materials, Testing Materials and Designs; Hearing and Sound

**SKILLS:** Creativity and Innovation; Critical Thinking and Problem Solving

Students will explore how sound interacts with different materials and discover how particular material properties can be used to absorb or reflect sound, experimenting with the use of these materials in construction. Students will experiment using sound meters and sensors.

Gallery Connection:  
Open Studio; Energy & Innovation

## MAGNET MANIA

2 60 min \$225 / class

**CONNECTION:** Magnetism

**SKILLS:** Creativity & Intellectual Curiosity; Scientific Literacy

Students will investigate the curious nature of magnets, and put them to use in some surprising ways.

Gallery Connection: Energy & Innovation

## PROGRAMS

# 4-6

### WHAT DO I NEED TO KNOW?

**CLASS MAXIMUM:** 30 Students.

**PRICES:** Prices are per class, and are exclusive of any applicable GST.

Classes over 30 students will be charged:

- 60 min programs: \$10 per additional student
- 90 min programs: \$12 per additional student
- Live Theatre / Demonstrations: \$10 per additional student

All workshops include access to the exhibition galleries.

**CHAPERONES:** Students must be accompanied by a chaperone at all times.

- K-6: 1 per 5 students
- 7-12: 1 per 10 students

Additional chaperones will require a \$10 admission fee.

Some programs available in French or Spanish. Contact us to learn more.

### EXPERIENCES KEY

WORKSHOPS

LIVE THEATRE/DEMONSTRATIONS

DISCOVERY DOME FILMS  
(coming in 2012)

**Ask us about our Membership Program and facility rental availability.**

P: 403.817.6800  
E: info@sparkscience.ca



### WATER FILTERS

4 60 min \$225 / class

**CONNECTIONS:** Waste and our World  
**SKILLS:** Critical Thinking; Problem Solving

Students will work in teams to tackle water quality issues by designing, building, testing and assessing their own filtration systems built out of raw materials and tested using **SPARK water quality sensors**.

Gallery Connection: Earth & Sky

### MY BEAT

4-6 60 min \$225 / class

**CONNECTIONS:** ICT - Operating; Communicating; Composing; Editing  
**SKILLS:** Communication; Information and Media Literacy

Students will create a short animation, starring themselves, grooving and moving to a musical beat of their choice. The level of complexity in the animations will shift with grades. Students will discover how programming can be used in creative ways, through the **SCRATCH** programming environment from MIT.

Gallery Connection: Open Studio

### SHADOW PUPPET PRODUCTION

4 90 min \$250 / class

**CONNECTIONS:** Light and Shadows; Language Arts; Art; Drama

**SKILLS:** Creativity and Innovation, Communication and Collaboration

Explore the fundamental principles of light, colour and shadow through experimentation and puppetry.

Gallery Connection: Open Studio

### MACHINE MAKERS

4 60 min \$225 / class

**CONNECTIONS:** Wheels and Levers; Building devices and vehicles that move  
**SKILLS:** Creative Thinking; Systems Thinking

Student groups will create their own mechanical device using cams, levers and axles, discovering how motion can be transferred and transformed as they build their own animated automaton.

Gallery Connection: Energy & Innovation

### AIR LAB

6 60 min \$225 / class

**CONNECTIONS:** Air and Aerodynamics; Flight  
**SKILLS:** Problem Solving; Communication and Collaboration

Students will investigate the properties of air by designing their own creative experiments using a range of materials. They can then build a device that relies on some of these properties.

Gallery Connection: Open Studio; Energy & Innovation

Staff were informative, organized and professional, making our day more enjoyable. Our students commented that: "This was the best field trip ever!"

—Grade 6 teacher



**COMING IN 2012!**  
**CALGARY'S ONLY HD DIGITAL DOME THEATRE**  
where audiences of 230 will enjoy uniquely immersive film experiences.  
**CLICK HERE** to be the first to hear about it!

**LIGHT AND SOUND SHOW**

4-5 90 min \$250 / class

**CONNECTIONS:** Light & Shadows; Mechanisms Using Electricity; Use Technology to Solve Problems  
**SKILLS:** Information and Media Literacy; Creativity

Students will explore the intersection of art and technology by creating their own light and sound shows through a combination of paper stencils and programmable micro-controllers, originally developed at MIT.

Gallery Connection: Open Studio

**MIX IT**

5 60 min \$225 / class

**CONNECTIONS:** Classroom Chemistry  
**SKILLS:** Critical Thinking & Systems Thinking; Scientific Literacy

Students will become chemistry detectives by identifying several unknown but common substances by designing their own experimental lab procedure. In the process, they will discover some of the fundamentals of chemistry.

Gallery Connection: Energy & Innovation

**THE STARRY SKY**

6 45 min 25 Students / class

**CONNECTIONS:** Sky Science  
**SKILLS:** Observation; communication

**BRING THE SKY TO YOUR SCHOOL,** prior to the launch of our HD digital Dome Theatre in Spring 2012. Students who step inside our **PORTABLE PLANETARIUM** will observe the motions of the universe, the phases of the Moon and seasonal changes. Listen to mythological stories about the constellations and learn how to identify planets, constellations and stars.

**BOOKINGS** are available for **ALL GRADES** on Tuesdays and Wednesdays. Multiple session bookings are encouraged.

**REQUIREMENTS:** The Portable Planetarium requires a large indoor space, such as a library or gymnasium, that is 21' x 21' x 11'. On arrival at your school, our team will require 45 minutes to assemble the Portable Planetarium, prior to the session beginning.

**Pricing:**

2 Sessions:	\$360
3 Sessions:	\$440
4 Sessions:	\$515
5 Sessions:	\$595

\*Note: Schools located 75km from the city centre will be charged a mileage rate of \$0.50/km

Gallery Connection: Earth & Sky

**SPARKING CIRCUITS**

5 60 min \$225 / class

**CONNECTIONS:** Electricity and Magnetism; Mechanisms Using Electricity  
**SKILLS:** Critical Thinking and Problem Solving

Students explore the fundamentals of electrical circuits and discover many of the basic principles underlying our modern world through the use of simple electrical components.

Gallery Connection: Energy & Innovation



## PROGRAMS

# 7-10

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WORKSHOPS

LIVE THEATRE/DEMONSTRATIONS

SPECIAL EVENTS

DISCOVERY DOME FILMS  
(coming in 2012)

Ask us about our Membership Program and facility rental availability.

P: 403.817.6800  
E: info@sparkscience.ca

*"Very engaging, interactive and hands on. The variety and time given for each activity was great!"*

*-Student*

### SPECTACULAR REACTIONS

9 50 min \$225 / class

**CONNECTIONS:** Matter and Chemical Change; Analyzing Qualitative and Quantitative Data

Every chemist secretly loves explosions, and in this demonstration, we all get to be scientists. Experience a hit-list of awesome experiments, including the thermite reaction and the oxidation of sucrose. As we investigate science at the atomic level, expect colourful fireballs, and theory brought to life with spectacular multimedia. Students will be encouraged to make their own observations, form hypotheses and draw their own conclusions. And of course, students will also learn about lab safety.

Gallery Connection: Energy & Innovation

### MY BEAT

7-8 60 min \$225 / class

**CONNECTIONS:** ICT - Operating; Communicating; Composing; Editing  
**SKILLS:** Communication; Information and Media Literacy

Students will create a short animation, starring themselves, grooving and moving to a musical beat of their choice. The level of complexity in the animations will shift with grades. Students will discover how programming can be used in creative ways, through the **SCRATCH** programming environment from MIT.

Gallery Connection: Open Studio

### WATER FOR ALL

8 60 min \$225 / class

**CONNECTIONS:** Freshwater and Saltwater Systems  
**SKILLS:** Critical Thinking and Problem Solving

Access to clean water is an important issue on a local and global level. Students will explore water quality by designing, building and then testing their own water filters. They will build the water filters from a range of raw materials and will use **SPARK water quality sensors** to assess the performance of their filters with a range of water samples.

Gallery Connection: Earth & Sky

### ASK THE PROFESSIONAL

*in partnership with Calgary Sexual Health Centre*

7-9 90 min \$275\* / class

**CONNECTIONS:** Wellness Choices - Personal Health; Safety and Responsibility  
**LIMITED DATES AVAILABLE:** November 29, December 6, April 24, May 1, May 8, May 15

Students will spend time in the Being Human gallery, and then head up to the Learning Centre where they can ask questions and learn from educators with Calgary Sexual Health Centre. Content will be driven by student questions, curricular outcomes, and an expansion of what students learn in the Being Human gallery.

*Please arrive by 11:00 a.m. to allow time to thoroughly explore the Being Human gallery, and enjoy lunch. Discussion begins at 12:30 p.m.*

Gallery Connection: Being Human

## PIPELINE CHALLENGE

7 90 min \$250 / class

**CONNECTIONS:** Interactions and Ecosystems  
**SKILLS:** Problem Solving; Critical Thinking; Communication and Collaboration

Students will design, build and test a pipeline constructed across and around many obstacles, while considering the environmental implications and economic costs of their design.

Gallery Connection: Energy & Innovation

## EARTH LAB

7 60 min \$225 / class

**CONNECTIONS:** Planet Earth  
**SKILLS:** Problem Solving; Critical Thinking  
 Students will tackle real world problems by using different tools to study the Earth. Students will use the **SPARK Science Learning System**, a mobile device with inquiry-based content and assessment, to perform a series of investigations to probe global and local Earth systems.

Gallery Connection: Earth & Sky

## HYDRAULIC CHALLENGE

8 90 min \$250 / class

**CONNECTIONS:** Science - Mechanical Systems  
**SKILLS:** Creative Thinking; Systems Thinking  
 What do fountains, car crushers, and trucks have in common? Hydraulics! Working in small groups, students will design, build and test their own hydraulic systems.

Gallery Connection: Energy & Innovation

## EXPLORING THE NIGHT SKY

9 45 min 25 Students / class

**CONNECTIONS:** Space exploration  
**SKILLS:** Observation; communication  
**BRING THE SKY TO YOUR SCHOOL**, prior to the launch of our HD digital Dome Theatre in Spring 2012. Students will join us on a voyage of exploration, where they will investigate the diversity of stars and planets, observe the celestial sphere and learn about sky coordinate systems. Students will also learn how to identify seasonal constellations, planets and stars.

**BOOKINGS** are available on Tuesdays and Wednesdays. Multiple session bookings are encouraged.

**REQUIREMENTS:** The Portable Planetarium requires a large indoor space, such as a library or gymnasium, that is 21' x 21' x 11'. On arrival at your school, our team will require 45 minutes to assemble the Portable Planetarium, prior to the session beginning.

### Pricing:

2 Sessions:	\$360
3 Sessions:	\$440
4 Sessions:	\$515
5 Sessions:	\$595

\*Note: Schools located 75km from the city centre will be charged a mileage rate of \$0.50/km

Gallery Connection: Earth & Sky

## COMING IN 2012!

### CALGARY'S ONLY HD DIGITAL DOME THEATRE

where audiences of 230 will enjoy uniquely immersive film experiences.

**CLICK HERE** to be the first to hear about it!

## EXTREME TEMPERATURE

7 50 min \$225 / class

**CONNECTIONS:** Heat and Temperature; Analyzing Qualitative and Quantitative Data

From the heat of a rocket engine to the freezing cold of liquid nitrogen, this demonstration is an exploration of extreme temperatures. Spectacular demonstrations will connect students with subjects such as thermal energy and heat transfer. The experiments combine multimedia visuals with opportunities for students to take measurements using different instruments, encouraging their critical thinking, and honing observation skills.

Gallery Connection: Energy & Innovation



## PROGRAMS

# 7-10

### WHAT DO I NEED TO KNOW?

**CLASS MAXIMUM:** 30 Students.

**PRICES:** Prices are per class, and are exclusive of any applicable GST.

Classes over 30 students will be charged:

- 60 min programs: \$10 per additional student
- 90 min programs: \$12 per additional student
- Live Theatre / Demonstrations: \$10 per additional student

All workshops include access to the exhibition galleries.

**CHAPERONES:** Students must be accompanied by a chaperone at all times.

- K-6: 1 per 5 students
- 7-12: 1 per 10 students

Additional chaperones will require a \$10 admission fee.

Some programs available in French or Spanish. Contact us to learn more.

### EXPERIENCES KEY

WORKSHOPS

LIVE THEATRE/DEMONSTRATIONS

DISCOVERY DOME FILMS  
(coming in 2012)

**Ask us about our Membership Program and facility rental availability.**

P: 403.817.6800  
E: [info@sparkscience.ca](mailto:info@sparkscience.ca)

### ELECTRICITY BLOCKS

9 90 min \$250 / class

**CONNECTIONS:** Electrical Principles and Technologies

**SKILLS:** Critical Thinking and Problem Solving

Students will experiment with electrical components and investigate how they can be connected to build their own circuits.

Gallery Connection: Energy & Innovation

### MARBLE MACHINES

7 90 min \$250 / class

**CONNECTIONS:** Structures and Forces

**SKILLS:** Creativity and Innovation; Communication and Collaboration

Students will face a series of design challenges, constructing simple machines to move marbles, that will stretch their creativity, collaboration and problem solving skills.

Gallery Connection: Energy & Innovation



### THE SCIENCE WITHIN

8 50 min \$225 / class

**CONNECTIONS:** Cells and Systems; Analyzing Qualitative and Quantitative Data

Get students excited about cells and systems, by being both the scientist and the subject. We'll super-size a microscope, decipher hidden messages in a huge heartbeat and test the audience's guts in a digestion race. Activities are combined with the latest in medical imagery and visualizations that connect cell structures and body systems. These experiments challenge students to think critically, make observations and form hypotheses about their own bodies on a range of scales.

Gallery Connection: Being Human



### SOIL PROCESSES

9 60 min \$225 / class

**CONNECTIONS:** Environmental Chemistry

**SKILLS:** Critical Thinking and Problem Solving

In this lab program, students will create unique soil mixtures and then test various properties of their soils, using **SPARK** sensors, with the goal of creating the optimal mix for the challenge presented to them.

Gallery Connection: Earth & Sky

# PLAN YOUR VISIT



## CULTIVATING TECH

7-9 90 min \$250 / class

**CONNECTION:** Developing a science and technology emphasis

**SKILLS:** Information and media literacy, creativity

Students combine creativity and problem solving skills by designing and building a computer controlled device to care for a living thing. Students will create programs using micro-controllers originally developed at MIT.

Gallery Connection: Open Studio

## CURIOUS MATTER

8, 10 90 min \$250 / class

**CONNECTIONS:**

Grade 8: Mix and flow of matter;

Grade 10: Energy and matter in chemical change

**SKILLS:** Critical Thinking and Problem Solving

In this lab, students will mix solutions, burn salts, test for pH, conductivity, and solubility. They will then be challenged to identify the chemical they've been given.

Gallery Connection: Energy & Innovation

## What I need to know when I book?

### When can schools visit?

We will welcome schools to TELUS Spark on November 1, 2011. Bookings for the 2011/12 school year will be accepted from June 1, 2011.

### How many students can schools bring?

All of our programs are booked by class, with a maximum class size of 30 students. Classes over 30 students will be charged as follows:

- 60 min programs: \$10 per additional student
- 90 min programs: \$12 per additional student
- Live Demonstrations: \$10 per additional student

### How many programs can I book for my students?

TELUS Spark offers a richer and more involved experience for teachers and students, where we encourage self-guided exploration.

Due to the expected high demand for our programs, we would request that you only book one program per class.

### How do schools pay for their visit?

At the time of a booking request, a \$50 non-refundable deposit is required. The remaining balance is due on the day of your visit. School cheques or major credit cards will be accepted. Once the deposit is received, your booking confirmation will be sent.

Prices and programs are subject to change without notice. School rates are significantly discounted. Memberships, promotions, discounts or coupons may not be redeemed for school bookings.

### Do teachers receive complimentary passes?

Teachers will receive one complimentary pass in their confirmation package, to be used prior to their school visit to facilitate planning and to decide on areas to emphasize during the actual field trip.

### What about GST?

As mandated by the Government of Canada, GST will be charged for programs for grades 7 and up, and standalone field trips to our exhibit galleries.

### How do schools or groups qualify for the school rate?

To qualify for the school rate, a group of students and their chaperones must be participating in a field-trip organized through:

- An institution accredited by Alberta Education (or equivalent from another jurisdiction)
- An organization licensed by Alberta Social Services for supervised child care
- Homeschooling.

### Do you have a program for Equity Schools?

We do not currently offer different rates for Equity Schools. Please contact us if you have a specific query by calling 403.817.6802.

## What I need to know when I'm preparing to visit?

### How many chaperones are schools required to bring?

For classes between K-6, schools must supply one chaperone for every five students. For grades 7 and up, schools must have one chaperone for every 10 students. Additional chaperones will be charged \$10 each. Special needs attendants receive complimentary admission.

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(cont.)

**Aside from formal programming and workshops, what can schools do during their visit?**

Booked field-trips include self-guided exploration in five exhibit galleries: Open Studio; Being Human; Energy & Innovation; Earth & Sky and the Creative Kids Museum (for Grade 3 and under). We encourage you to allow at least one hour for each gallery you intend to explore.

**What if I need to change a booking?**

Changes or cancellations need to be completed at least two weeks prior to the scheduled visit. Please note that any changes are subject to availability. The first change to a booking is free of charge. Subsequent changes will be charged a \$25 administration fee. In the case of cancellations, the \$50 deposit is non-refundable and non-transferable.

**What if extreme weather conditions prevent us from attending?**

If severe weather prevents your school from attending your booked visit, we will help you rebook your visit, free of charge, for later in the school year, subject to program availability. If extreme weather forces you to cancel your visit, please call 403.817.6802 as soon as possible.

**What are our lunch options?**

As TELUS Spark is a green, LEED Gold certified facility, we are continuing to promote our Litter-Free Lunch program. We encourage all students to enjoy the healthy options available for purchase in our Café, or to bring waste-free lunches including:

- Food stored in reusable containers
- Whole fruits with no packaging
- Drinks in containers that can be reused
- Cloth lunch bags
- Reusable forks and spoons.

**What do I need to know when I arrive?**

**Where will the students eat lunch?**

Lunch can be eaten in the Café or Atrium, or if the weather permits, in our Outdoor Park. You're welcome to bring a Litter-Free Lunch with you, or enjoy the many healthy options available for purchase in the Café.

**What do we do with backpacks?**

We ask that students bring only their lunch bags and not their backpacks. Lunches and coats will be stored in cabinets, and these spaces are limited.

# BOOK YOUR VISIT

Please have the following information ready when you call to book: 403.817.6802

Grade	Total Students	Program Title	Date	Arrival Time	Dept. Time
			Alternate		
			Alternate		
			Alternate		
			Alternate		
			Alternate		

# of Teachers: \_\_\_\_\_ # of Chaperones: \_\_\_\_\_ # of Assistants: \_\_\_\_\_

School Name: \_\_\_\_\_

School District: \_\_\_\_\_

Teacher's Name: \_\_\_\_\_

Email Address: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Payment Method:  Cheque  Mastercard  Visa *\$50 deposit required at the time of booking*

Card Number: \_\_\_\_\_ CSV: \_\_\_\_\_

Name on Card: \_\_\_\_\_ Expiry Date: \_\_\_\_\_

Or print and send this form to:

e: [educators@sparkscience.ca](mailto:educators@sparkscience.ca)

f: 403.817.6902

a: Educators

TELUS Spark

220 St. George's Drive NE

Calgary, Alberta T2E 5T2