



SCIENTISTS IN SCHOOL

PROGRAM CATALOGUE
2011/2012
NIAGARA REGION



Scientists in School is a dynamic charity dedicated to establishing a strong foundation of science and innovation among Canadian youth. Our mission is to ignite scientific curiosity in children so that they: question intelligently; learn through discovery; connect scientific knowledge to their world; and consider a career in science. SiS recognizes that early positive exposure is critical to instilling a life-long interest in science and technology and to cultivating tomorrow's leaders.

SCIENTISTS IN SCHOOL SOUTH CENTRAL ONTARIO: NIAGARA REGION

P.O. Box 660 Fonthill, Ontario L0S 1E0

Tel/Fax: 905-892-9146

Email: niagara@scientistsinschool.ca

Web: www.scientistsinschool.ca



2011/2012 Booking Form

Subsidized Workshop Fee: \$169

(Valid for the school year beginning September 2011 and ending June 2012)

Each classroom workshop should be recorded as a separate request.

ALLERGY ADVISORY: Please advise us of any known allergies or restrictions in your school.

Due to the hands-on nature of our workshops, we have set a maximum class size of 30.

Current pricing is available at www.scientistsinschool.ca

A deposit of \$25 per workshop must accompany this application. An invoice for the balance of the workshop fee will be sent to your school following completion of your workshop.

Please send completed form by mail or fax to:

**Scientists in School
South Central Ontario:
Niagara Region**
P.O. Box 660
Fonthill, Ontario L0S 1E0
Tel/Fax: 905-892-9146
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Please do not hesitate to contact us at any time to check the status of your request.

Thank You!

Scientists in School Booking Form

Please fill out the following information completely. Printing is appreciated.

Application Date: _____

Board: _____ **School:** _____

Tel: _____ **Fax:** _____

1

Teacher: _____ **Grade:** _____

Home Tel: _____ **Class Size:** _____

Email: _____

Topic: _____

Preferred Month: _____ **Time:** AM _____ PM _____

Alternate Topic: _____

Special Notes: _____

2

Teacher: _____ **Grade:** _____

Home Tel: _____ **Class Size:** _____

Email: _____

Topic: _____

Preferred Month: _____ **Time:** AM _____ PM _____

Alternate Topic: _____

Special Notes: _____

3

Teacher: _____ **Grade:** _____

Home Tel: _____ **Class Size:** _____

Email: _____

Topic: _____

Preferred Month: _____ **Time:** AM _____ PM _____

Alternate Topic: _____

Special Notes: _____

4

Teacher: _____ **Grade:** _____

Home Tel: _____ **Class Size:** _____

Email: _____

Topic: _____

Preferred Month: _____ **Time:** AM _____ PM _____

Alternate Topic: _____

Special Notes: _____

Join Our Email Database

Be eco-friendly and stay up-to-date with the latest news from Scientists in School via email.

To be included, please provide the following:

Name: _____ Tel: _____

Preferred email for correspondence: _____

SCIENTISTS IN SCHOOL

We're The Field Trip That Comes To You!

Scientists in School is a **Canadian charitable organization**, initiated in 1989 with the support of the Canadian Federation of University Women, Ajax/ Pickering. Our approach is to inspire elementary students and teachers to **explore science, technology and math** through fun, investigative half-day workshops where students become the scientists. SiS workshops **extend and enrich** the Ontario Science and Technology, Kindergarten and Math Curricula. SiS also provides **valuable extensions and real world applications to enhance student learning**. Our presenters are local scientists and technical experts who have **extensive experience working with children**.

How To Book A Workshop:

CHOOSE YOUR TOPIC: We have something for everyone: topics which enrich the Science and Technology, Kindergarten and Math Curricula; special interest topics; and workshops which are ideal for combined-grade classes. For your convenience, workshop descriptions are organized by grade.

REQUEST YOUR WORKSHOP: We accept workshop requests throughout the year. Book on-line at www.scientistsinschool.ca. You will receive a confirmation email acknowledging receipt of your request. Or fax/mail a completed booking form, found at the back of this catalogue.

ALLERGY ADVISORY: Our workshop kits contain a wide variety of diverse items and are handled by many students. While we regularly maintain our kits for cleanliness and safety, we cannot guarantee they are free from all allergens. Please advise us of any known allergies in your classroom or special restrictions in your school.

SEND IN YOUR DEPOSIT: A \$25 deposit per workshop is required to process your request. Please send in your deposit cheque by mail attached to your booking form, or if booking on-line, attached to your email confirmation. An invoice for the balance of the workshop fee will be sent to your school following completion of your workshop. Please visit our website for booking terms and conditions.

RESERVE YOUR DATE: A presenter will contact you to schedule a specific date for your workshop: at the beginning of September if your request was received during the summer months or within 3-4 weeks of receipt of your request during the school year.

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CATALOGUE INDEX

Kindergarten, Grade 1 & Grade 2 Workshops:
Pages 2 & 3

Grade 3, Grade 4 & Grade 5 Workshops:
Pages 4 & 5

Grade 6, Grade 7 & Grade 8 Workshops:
Pages 6 & 7

OUR MISSION

To ignite scientific curiosity in children so that they:

- question intelligently
- learn through discovery
- connect scientific knowledge to their world
- consider a career in science



DID YOU KNOW?

This catalogue is available online at
www.scientistsinschool.ca



Examining nature's creatures in *Animal Coverings and Adaptations*

KINDERGARTEN WORKSHOPS

BACKYARD BUGS* KINDERGARTEN

'Bee' an entomologist! Meet the insect family and discover their unique anatomy. Develop a new appreciation of bugs by investigating how bugs behave, eat, see and hear. Help a butterfly play hide and seek using camouflage. See the world through the eyes of a dragonfly. Identify interesting backyard bugs and make and take an insect home.

I CAN BE A SCIENTIST* KINDERGARTEN

Become a working scientist! Dig for dinosaur bones and make a fossil as a paleontologist. Explore the weather as a meteorologist while making it rain in the classroom. Become an astronomer and discover the big dipper in our constellation tent. Use a lab coat and safety goggles to find the solution as a chemist in the lab!

SIMPLY MARVELLOUS MACHINES* KINDERGARTEN

Discover how often you use simple machines in everyday life! Find simple machines at the playground as you slide down an inclined plane, dig with a wedge and make a teeter totter to take home. Explore how to make bubbles using gears; discover that wedges have edges; and investigate the mechanical advantage of using levers.

THERE'S NO PLACE LIKE HOME!* KINDERGARTEN

Follow the footprints and other clues to find the home of the mystery animal! Develop a life-long respect for the environment by learning about a variety of habitats. Build a nest in a tree using just your beak. Slither like a snake or dig like a mole through your underground tunnel. Discover why your home is salty if you live in the sea!

GRADE ONE WORKSHOPS

ANIMAL COVERINGS AND ADAPTATIONS EARTH AND SPACE SYSTEMS

Gather around to pet a skunk and other interesting North American mammals! Investigate the insulating properties of a variety of animal coverings and discover some of the amazing adaptations animals use to survive seasonal changes. Use a microscope to explore some of nature's most unusual coverings including quills, shells, scales, feathers and fur!

ENERGY MAKES IT HAPPEN MATTER AND ENERGY

Investigate the power of the sun as you explore the impact energy has on our daily lives! Make a bubble grow using heat as you investigate thermal energy. Make your own bracelet that will tell you if you should be wearing sunscreen. Discover what dinosaurs and your car have in common. Uncover your inner Picasso and create abstract paintings using solar power!

KITCHEN CHEMISTRY FOR CURIOUS KIDS SPECIAL INTEREST

As food scientists, savour the science behind baking bread! Find out why yeast rises. Investigate the chemistry behind baked goods as you blow up a balloon without using air. Do the molecule dance to learn about the three states of matter and how solids, liquids and gases move. Test your powers of observation by participating in our taste test dare to drink a chemical concoction you make!

STRUCTURES: UNDER CONSTRUCTION STRUCTURES AND MECHANISMS

Join our engineering team and build a structure capable of supporting your teacher! Discover the concepts you will need to make this happen. Explore the role of fasteners and the properties of materials using real tools. Test three-dimensional shapes for structural strength. Investigate form and function with familiar playground structures. Build a framework and test your own tower of stability!

GRADE TWO WORKSHOPS

ANIMAL COVERINGS AND ADAPTATIONS LIFE SYSTEMS

Gather around to pet a skunk and other interesting North American mammals! Investigate the insulating properties of a variety of animal coverings and discover some of the amazing adaptations animals use to survive seasonal changes. Use a microscope to explore some of nature's most unusual coverings including quills, shells, scales, feathers and fur!

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LET IT FLOW: AIR AND WATER EARTH AND SPACE SYSTEMS

Discover the properties of air and water and the need to protect these valuable resources! Learn that air has weight, takes up space and use it to save an accident victim. Explore the water cycle through drama. Uncover the hidden power in a water wheel and race your own boat to investigate the impact of sail size.

LOOKING AT LIQUIDS MATTER AND ENERGY

Marvel as you explore the three states of matter, change a liquid to a solid and then eat it! Become a thermometer and investigate the conditions necessary to produce a change in state. Discover what an orange and hockey puck have in common while exploring buoyancy and how to increase it. Explore how different states of matter interact while investigating solubility and take up the challenge to produce the world's biggest bubble!

MATH: IT COUNTS! MATH

Open your own bank account and earn money while learning about place value, currency and Venn diagrams. Practice telling time on both digital and analogue clocks. Explore fractions while performing a classroom play. Try and trick your teacher as you re-organize yourselves by a mystery attribute. Become a banker, a storekeeper and a shopper as you add up your money, make change and calculate your spending power!

MOVE IT! STRUCTURES AND MECHANISMS

As masters of all that move, discover how simple machines make work easier! Motor along as you construct your own car while exploring wheels and axles. Go fishing to experiment with levers. Investigate wedges to discover what doorstops and airplanes have in common. Make your own screw and drive a car to learn about inclined planes.

HOW TO BOOK A WORKSHOP

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GRADE THREE WORKSHOPS

FORCE, OF COURSE! MATTER AND ENERGY

Step into the physics lab to investigate the impact of friction, gravity, magnetic and electrostatic force. Discover the science behind magically removing a table cloth from underneath the dishes without breaking any! Learn how a volcano erupts and how the vortex of a tornado can uproot trees. Design a marble run and experiment with marbles and magnets to see if they can defy gravity.

SOIL: IT'S TOO IMPORTANT TO BE TREATED LIKE DIRT!

EARTH AND SPACE SYSTEMS

Become a pedologist and get down and dirty with a variety of soil types! Discover that soil is composed of earth materials and decaying organisms. Race water through different soil types to investigate their water holding capacity. Explore which nutrient makes soil blush as you learn about plant growth. Burrow through soil as a plant root to explore soil texture. Investigate erosion; build a soil profile; and learn about decomposers by making friends with some earthy creatures!

STRUCTURES: STABLE AND STRONG STRUCTURES AND MECHANISMS

Build up your knowledge of structural strength and stability as a junior engineer! Explore the difference between man-made and natural structures. Investigate how the strength of a material can be altered by its shape. Create structures and learn the impact of forces acting on them. Take up the challenge to design, build and test a bridge!

MATH: IT COUNTS!

MATH

Open your own bank account and earn money while learning about place value, currency and Venn diagrams. Practice telling time on both digital and analogue clocks. Explore fractions while performing a classroom play. Try and trick your teacher as you re-organize yourselves by a mystery attribute. Become a banker, a storekeeper and a shopper as you add up your money, make change and calculate your spending power!

GRADE FOUR WORKSHOPS

ADVENTURES IN THE BONE ZONE SPECIAL INTEREST

Delve into the diet and digestion of an owl as you discover what an owl eats for breakfast! Join this ecological adventure and dissect an owl pellet, use magnifying glasses to sort and identify bones and assemble a rodent skeleton. Examine a variety of mammalian skulls to determine species and explore similarities and differences between herbivores and carnivores.

DON'T TAKE ROCKS FOR GRANITE EARTH AND SPACE SYSTEMS

Become a junior geologist and dig into the concepts of the rock cycle and modern mining. Identify a mystery mineral and explore how we use mined materials every day. Feel rocks from inside a volcano, metamorphose a rock in your hands and make a rock from plants and sea shells.

GEARING UP: FUN WITH PULLEYS AND GEARS

STRUCTURES AND MECHANISMS

Step into the physics lab and learn how pulleys and gears change the force required to do work! Create a work of art using an internal gear system. Build a variety of pulley systems, design and construct a gear train and explore how pulleys and gears can change the direction of an applied force. Investigate the type of gear which makes a bey blade move and discover an easy way to move something much bigger than yourself!

SOUND IS MUSIC TO MY EARS MATTER AND ENERGY

Discover the science of sound as musical maestros! Explore sound waves and learn how sound makes your desk hum. Play the bucket bass to explore factors affecting pitch. Create a laughing chicken to investigate amplification. Discover how the human ear detects sounds; guess the decibel level of a jet engine; and learn how to protect your ears.

 A PDF version of this catalogue is available at: www.scientistsinschool.ca

GRADE FIVE WORKSHOPS

ADVENTURES IN THE BONE ZONE SPECIAL INTEREST

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BODY WORKS LIFE SYSTEMS

Join us on a journey around the human body to explore its complexities! Build a kidney system; measure lung capacity; test your reflexes; identify human bones using x-rays; and use a stethoscope to measure your heart rate.

CONSERVE YOUR ENERGY EARTH AND SPACE SYSTEMS

Be inspired to embrace energy conservation! Discover where energy comes from, different forms of energy and how energy is transferred or transformed. Identify energy stored in household objects, investigate how to launch a ping pong ball into space and discover how the energy in your body can power wind-up toys. Investigate insulation and learn how to avoid turning toonies into hot air. Explore the use of solar panels and use one to play a tune!

MAY THE FORCE BE WITH YOU STRUCTURES AND MECHANISMS

Join our engineering team to learn how structures resist the forces acting on them! Participate in a potato masher relay race to examine forces. Explore, through drama, which forces are important in designing and building a structure. Investigate centre of gravity and learn its importance in structural design. Take on the challenge of designing, building and testing a free standing structure!

WHAT IN THE WORLD IS MATTER? MATTER AND ENERGY

Explore solids, liquids, gases and changes in state as detectives seeking clues to the mysteries of matter! Discover the difference between physical and chemical changes by investigating whether all plastics are created equal, participating in our amazing evaporation race and carrying out some cool chemistry in a Ziploc bag! Determine the identity of the mystery compound using your chemical intuition, some crafty experimentation and clues gathered during this chemical adventure.

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GRADE SIX WORKSHOPS

ADVENTURES IN THE BONE ZONE

SPECIAL INTEREST

Delve into the diet and digestion of an owl as you discover what an owl eats for breakfast! Join this ecological adventure and dissect an owl pellet, use magnifying glasses to sort and identify bones and assemble a rodent skeleton. Examine a variety of mammalian skulls to determine species and explore similarities and differences between herbivores and carnivores.

AIR AND FLIGHT

STRUCTURES AND MECHANISMS

Soar as you explore the science behind powered and non-powered flight! Discover the properties of air and the principles of flight by levitating a ping pong ball, finding the best wing design and angle of attack for lift-off and discovering the correct mechanics of propeller construction. Build your own plane and become an aviator to investigate factors affecting the direction and speed of flight.

CLASSY CRITTERS

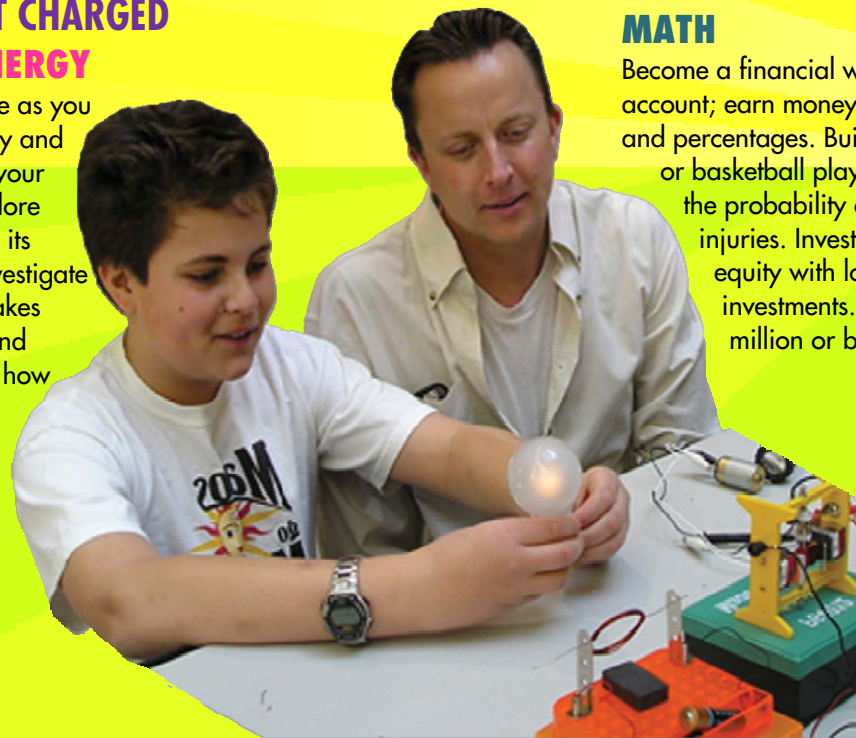
LIFE SYSTEMS

Discover the 'Tree of Life' while working as a taxonomist! Create order from the vast diversity of living things using the Linnaean classification system. Examine the microscopic world of protists and monerans and match macroscopic specimens by uncovering similarities and differences. Compare important connections between species to understand why a classification system from 1735 still works today.

ELECTRICITY: GET CHARGED

MATTER AND ENERGY

Take a step back in time as you re-create the first battery and see how much voltage your battery generates. Explore the nature of electricity, its generation and use. Investigate how static electricity makes objects move. Design and build circuits and learn how a house is wired. Test conductors, insulators and switches. Explore electromagnets and simple motors.



Making a connection in Electricity: Get Charged

GRADE SEVEN WORKSHOPS

ADVENTURES IN THE BONE ZONE

SPECIAL INTEREST

Delve into the diet and digestion of an owl as you discover what an owl eats for breakfast! Join this ecological adventure and dissect an owl pellet, use magnifying glasses to sort and identify bones and assemble a rodent skeleton. Examine a variety of mammalian skulls to determine species and explore similarities and differences between herbivores and carnivores.

ENGINEERING CHALLENGES

STRUCTURES AND MECHANISMS

Discover the secrets of structural strength and stability! Design and build a functioning cantilever able to withstand a substantial load. Investigate how to fortify beam, truss, arch and suspension bridges. Join a class-wide challenge to build a truss bridge resistant to static and dynamic loads and internal forces using only newspaper and masking tape!

HOT STUFF!

EARTH AND SPACE SYSTEMS

Join our Research and Development team at the 'SiS Toy Company'. Challenge yourself to discover the secret workings behind a candle-powered putt-putt boat. Analyze how conduction, convection and radiation work together to propel these boats. Investigate how the particle theory explains changes in state, the properties of matter and how energy transformations keep things moving!

MATH IS MY BUSINESS

MATH

Become a financial wizard! Create your own bank account; earn money as you learn about probability and percentages. Build a dream team for the hockey or basketball playoffs, calculate cap space and the probability of losing your star players to injuries. Invest the money you earn to build equity with low, medium or high risk investments. Will you earn your first million or break the bank?

GRADE EIGHT WORKSHOPS

CELL EXPLORERS: INVESTIGATING CELL STRUCTURE AND FUNCTION

LIFE SYSTEMS

Become a cell biologist and examine a variety of plant and animal cells using compound microscopes and a videoscope. Examine your own cheek cells and other human body cells to determine their structure. Make wet mounts of plant cells and compare their structure to animal cells. Get absorbed in the study of osmosis and, if the season permits, explore pond water samples for living organisms.

FLUID POWER

MATTER AND ENERGY

Let the ideas flow as you explore fluids and their application in mechanical systems! Investigate the physical properties of a variety of fluids. Use hydrometers to determine relative density and join a liquid race to investigate viscosity. Move a load with dump trucks and forklifts to compare hydraulic and pneumatic systems and analyze the compressibility of fluids. Explore the magnification of power achieved in hydraulic stamps and car brakes.

GROUNDWATER INVESTIGATIONS

EARTH AND SPACE SYSTEMS

Investigate how to become stewards of our water systems! Determine the impact of the environment on our water supply. Discover nature's filtration system while exploring groundwater processes and how these systems can become contaminated with pollutants such as salt, petroleum products and fertilizers. Learn how to evaluate and choose the best site to build a house.

MATH IS MY BUSINESS

MATH

Become a financial wizard! Create your own bank account; earn money as you learn about probability and percentages. Build a dream team for the hockey or basketball playoffs, calculate cap space and the probability of losing your star players to injuries. Invest the money you earn to build equity with low, medium or high risk investments. Will you earn your first million or break the bank?

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Science Education Through Partnerships

We gratefully acknowledge the generous support of our corporate and community partners.

Catalyst Level

Our Key Corporate Partner



Innovation Level



Mentorship Level



John and Deborah Harris Family Foundation



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Imagination Level



Discovery Level

