



Deeper and Deeper: Discovering Rocks and Minerals

In-Service Workshop for Grade 4 Teachers

**Bring
Earth
science
to life
for your
students!**

This hands-on workshop will focus on exploring the *Deeper & Deeper: Discovering Rocks and Minerals* teacher resource. Teachers will test the physical properties of minerals, learn how to look for clues in rocks to determine how they were formed, gain a better understanding of the three rock types and explore the rock cycle through hands-on activities that can be reproduced in the classroom.



Resource kits are available in English or French.

For more information please see attached Table of Contents and Resource Kit Contents.

Teachers must attend a one-hour in-service workshop that will be held online. Dates and times to be confirmed.

Deeper and Deeper Teacher Resource Description

Examine rocks and minerals and investigate their importance in your life. Explore how soil and erosion affect landscape and land usage. Discover the benefits and costs of using products made from mined materials. The *Deeper and Deeper* kit includes:

- 39 lesson plans, each including student activity cards
- Word document of Student Blackline Master for easy modifications and photocopying
- Mineral testing equipment
- 36 rock and 29 mineral samples needed for the activities
- Posters, photographs, DVD, diagrams, book, card game used in the activities
- Additional resources such as word wall cards, posters and fact sheets
- Sturdy storage container

Deeper & Deeper: Discovering Rocks and Minerals has been developed by teachers, for teachers, and meets curriculum expectations for Grade 4 - Rocks, Minerals, and Erosion.

Teacher Feedback

The kit and activities are amazing! I can't wait to use it!

Best PD ever!

I have so many hands-on activities to choose from.

Great to have samples organized and prepared to use in the classroom.

With thanks to:

CIM Northern Gateway

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Contents

Introduction

	Page
Getting Started	6
Resource Kit Contents	7
Sample Letter to Parents	10
Safety	11
Acknowledgements	11
Curriculum Expectations for Ontario	14
Evaluation Rubrics	38

Topic 1: Getting Motivated

Teacher Preparation	1
Student Tracking Sheet	5
Activity 1: <i>The Magic School Bus Inside the Earth</i>	7
Activity 2: Earth Exploration	13
Activity 3: <i>The Magic School Bus Inside the Earth</i> Game Show	19
Activity 4: Creating Mineral Mates	23

Topic 2: Rocks and Minerals

Teacher Preparation	1
Student Tracking Sheet	7
Activity 1: Geology and Safety	9
Activity 2: I Spy	13
Activity 3: Difference between Rocks and Minerals	17
Activity 4: Scientific Testing of Rocks and Minerals	21
Activity 5: The Importance of Rocks and Minerals	29
Activity 6: The Three Rock Groups	33
Activity 7: Making Sense of Igneous Rocks	39
Activity 8: Making Sense of Sedimentary Rocks	43
Activity 9: Making a Fossil	47
Activity 10: Making Sense of Metamorphic Rocks	53
Activity 11: Locating Rocks, Minerals and Metals	57



Activity 12: Interpreting Mineral Data	61
Activity 13: Rock Story Drama	67
Activity 14: Rock and Mineral Concentration	71
Activity 15: Rock and Mineral Review and Test	81

Topic 3: Mining Responsibly

Teacher Preparation	1
Student Tracking Sheet	5
Activity 1: Introduction to Mining	7
Activity 2: Underground Mine Tour	15
Activity 3: Operating a Surface Mine	19
Activity 4: Mining Crushed Stone, Sand and Gravel	25
Activity 5: A Paste with a Taste	33
Activity 6: Erosion by Acid Rain	37
Activity 7: Recycling Rocks and Minerals	41
Activity 8: Mining Comes to Ogimokwe	49
Activity 9: Creating a Mining CD	63
Activity 10: Product Life Cycle Research	69
Activity 11: Personal Reflection on Mining	73

Teacher Investigation File

Student Investigation File

Resource Kit Contents

The **Deeper and Deeper** kit comes assembled in a plastic storage box that contains the visual materials, rock and mineral samples and testing equipment required to complete the activities. Consumable materials are supplied by the school.

Materials

Resource Binder (see Getting Started section for contents)

The Magic School Bus Inside the Earth by Joanna Cole and Bruce Degen

NickelQuest DVD

What's Yours is Mined card game

Envelopes

Topic 1: Getting Motivated

Activity	Quantity	Item
Activity 2	5	Double sided photo card: Items made from Rocks, Minerals and Metals Examples of Earth processes
Activity 2	10	Geology and Selected Mineral Deposits map <i>Also used in Topic 2: Activity 11</i>
Activity 2	1	NRCan Fact Sheet: Metals from the Sea Floor

Topic 2: Rocks and Minerals

Activity	Quantity	Item
Activity 1	10	Geology and Safety photo card
Activity 3	1	Minerals – The Building Blocks of Rocks card
Activity 3	1	Minerals – The Building Blocks of Rocks overhead
Activity 4, 15	2	Mineral Challenge card
Activity 4, 15	2	Physical Properties of Minerals card
Activity 6	10	The Three Rock Groups card
Activity 9	5	Common Fossils card
Activity 11	10	<i>Geology and Selected Mineral Deposits map: in Topic 1 Getting Motivated envelope</i>

Topic 3: Mining Responsibly

Activity	Quantity	Item
Activity 1, 2	1	Underground Mine poster
Activity 1, 3, 4	1	Surface Mine Poster
Activity 3	5	Mine Site Reclamation photo card
Activity 5	1	Dig a Little Deeper, A Bright Smile poster

Additional Resources

Word Wall vocabulary cards

Equipment Packages

Take special care to ensure that rock and mineral samples are returned to the correct packages after use. Experience shows that samples do go missing; teachers using **Deeper and Deeper** may request replacement rock and mineral samples provided they have submitted their resource evaluation. Full sets of samples cannot be replaced as supplies are very limited. Replacement of the **Rock and Mineral Concentration** card game can be made from the master in the **Resource Binder**.

Title	Topic/Activity	Quantity	Contents (each)
Earth Exploration Package	Topic 1: Getting Motivated Activity 2 Topic 2: Rocks and Minerals Activity 3 Topic 3: Mining Responsibly Activity 5	5	Quartz Halite Gypsum Granite Limestone
General Equipment Package	Topic 2: Rocks and Minerals Activities 2, 3, 4, 7, 8, 9, 15	1	2 Magnifying glasses 2 Magnets 2 Streak plates 2 Pennies (1 cent coin) 2 Nails 2 Mohs' Hardness Scale charts 2 Grain size rulers



Title	Topic/Activity	Quantity	Contents (each)
Conductivity tester package (requires assembly)	Topic 2: Rocks and Minerals Activities 4, 15	1	2 buzzers 2 battery clips 2 9 V batteries 4 alligator clip leads
Mineral Discovery Package	Topic 2: Rocks and Minerals Activities 4, 15 Topic 3: Mining Responsibly Activity 5	1	2 Quartz 2 Magnetite 2 Gypsum 2 Amethyst 2 Calcite 2 Chalcopyrite 2 Hematite
Rock Discovery Package	Topic 2: Rocks and Minerals Activity 6 Topic 3: Mining Responsibly Activity 5	1	2 Rhyolite 2 Granite 2 Sandstone 2 Shale 2 Limestone 2 Quartzite 2 Slate 2 Marble
Igneous Rock Package	Topic 2: Rocks and Minerals Activity 7	1	2 Diorite 2 Pumice
Fossils Package	Topic 2: Rocks and Minerals Activity 9	1	2 Dolostone 1 Brachiopod
Making a Fossil Package	Topic 2: Rocks and Minerals Activity 9	1	5 Plastic insects
Metamorphic Rock Package	Topic 2: Rocks and Minerals Activity 10	1	2 Granite 2 Gneiss
Rock and Mineral Concentration Cards	Topic 2: Rocks and Minerals Activity 14	1	5 sets of concentration cards