

The Skin You're In

Curriculum-Linked Education Program Teacher's Kit

This Teacher's Kit offers supplementary materials for *The Skin You're In* Education Program. It is designed to be used in your classroom before and after your program booking. We hope it will help you and your students make the most of your visit to the Museum of Health Care.

Please make use of the activities included in this kit as appropriate to your schedule and objectives. If you have any questions about the materials included here or the upcoming visit, please do not hesitate to contact the Museum.

Thank you very much, and we look forward to working with you and your class.

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Curriculum Links

Science and Technology:

Strand: Understanding Life Systems

Topic: Growth and Change in Animals

Fundamental concept: Structure and function

Big idea: There are similarities and differences among different kinds of animals

Overall expectations

C2 Investigate similarities and differences in the characteristics of different animals

Specific expectations

C2.2 Observe and compare the physical characteristics and the behavioural characteristics of different animals

C2.5 Investigate the ways in which a variety of animals adapt to their environment

Topic: Human organ systems

Fundamental concepts: Structure and function, systems and interaction

Big ideas: Organ structures are linked to their function

Choices we make affect our organ systems, and in turn, our overall health

Overall expectations

C1 Analyze the impact of human activities and technological innovations on human health

C2 Investigate the structure and function of the major organs of various human body systems

Specific expectations

C1.1 Assess the effects of social and environmental factors on human health, and propose ways in which individuals can reduce the harmful effects of these factors

C3.1 Identify major systems in the human body

Health and Physical Education

Strand: Healthy Living

Topic: Making connections for healthy living

Overall expectations

C3 Demonstrate the ability to make connections that relate to health and wellbeing

Specific expectations

C3.2 Recognize the responsibilities and risks associated with caring for themselves and others

Vocabulary List

Key Word	Definition
Braille	A system of raised dots that enables the blind and visually impaired to read using their fingers.
Epidermis Layer	Very thin layer of the skin. When the cells in this layer die, they move up to the keratin layer.
Dermis Layer	Makes up ninety percent of the skin, where hair follicles and sweat glands are located.
Keratin Layer	Outermost layer comprised of dead cells that are constantly being replaced.
Melanin	Substance produced in the skin cells (melanocytes) that give your skin pigmentation.
Organ	A collection of two or more tissues, joined in a structural unit, to serve a common function
Subcutaneous Layer	Fatty layer of the skin, necessary for keeping us warm.

The Skin You're In: In-Museum Program

Description

This education program is composed of several parts: an introduction to the skin with a touch and feel game involving animal skins, discussion of skin layers using a 3D model, an introduction to Braille including, making Braille name cards, and a concluding discussion about what participants have learned.

Educational Outcome

At the end of the visit, participants will be able to:

- ❖ Differentiate between the various types of skins animals have and why each one is important.
- ❖ Describe the various layers that make the human skin
- ❖ List the ways that people's skin help them to live and survive in the world around them.

Length

- ❖ Approximately 45 minutes

Potential Audiences

- ❖ This activity can be used with school groups, summer camp groups or families
- ❖ This activity is appropriate for children ages 7 – 10

Post-Museum Visit Activities

1. Ask students to work in groups to complete a brainstorming web about skin safety. They should include possible dangers to our skin and how we can prevent them. Ask each group to present their ideas.

Possible Answers:

- Scrapes – use proper sports equipment, be careful when playing
 - Sun – always wear sunscreen and a hat
 - Bites – use insect repellent, treat bites received from insects or animals
 - Burns – wear oven mitts when cooking, be wary of open flames (i.e. a campfire or barbeque)
2. Ask students to work in pairs to create a model of the human skin using construction paper to represent the different layers.
 3. Ask students to complete the attached worksheet, “Fur and Feathers, Shells and Scales.”
 4. Ask students to complete a poster on a “beastie that bites” (e.g. mosquito, flea, tick, bee, bed bug). Include the following information:
 - Appearance of insect
 - Location of insect in Canada
 - Lifespan of the insect
 - What the insect feeds on
 - How and why it bites or stings humans
 - Ways to prevent stinging or biting from the insect

Fur and Feathers, Shells and Scales: Species in Ontario

Research the following Ontario species and fill in the "Appearance of the Skin" and "Habitat" columns. In the last column, suggest various functions that their skin might have in order to protect them in their habitat, based on the information you have gathered about the creature.

Creature	Appearance of Skin	Habitat	Function of Skin
Spring Peeper			
Largemouth Bass			
Yellow-headed Blackbird			
Blanding's Turtle			
Massasauga Rattlesnake			
Monarch Butterfly			
Ontario Black Bear			

“All About Your Skin” Word Search

K	F	Q	N	I	T	A	R	E	K	E	S	J	D	L
L	O	C	E	L	L	S	G	M	T	U	A	W	Q	E
I	L	M	X	U	M	M	K	Y	B	Y	T	M	N	S
H	L	O	A	K	V	T	C	C	O	V	E	N	D	S
J	I	S	A	Y	W	O	U	Q	M	L	I	U	B	E
U	C	W	H	L	N	T	H	Q	A	F	Z	X	I	V
T	L	Z	G	A	A	L	E	N	L	Z	G	Z	R	D
R	E	K	L	N	E	P	I	D	E	R	M	I	S	O
E	S	E	E	K	H	N	Q	E	Y	B	G	S	Y	O
H	M	O	S	D	N	A	L	G	T	A	E	W	S	L
G	U	F	R	I	S	I	I	N	M	R	Z	N	J	B
S	C	Z	E	E	M	N	J	R	O	B	L	M	K	G
F	H	T	Y	F	Q	R	L	P	J	I	M	H	W	F
F	L	V	A	E	U	P	E	U	F	G	P	V	F	E
P	C	E	L	K	P	Z	Z	D	L	G	D	I	I	Y

BLOODVESSEL

CELLS

DERMIS

EPIDERMIS

FOLLICLES

HAIR

KERATIN

LAYERS

MELANIN

MELANOCYTE

PORES

SUBCUTANEOUS

SWEATGLANDS

“Beasties that Bite” Fact Sheet

Beasties that Bite

Flea

- Can be found on humans after a walk in the woods
- Jumping fleas can jump approximately 150x the length of their own size (this is the equivalent of a child jumping the length of a football field!)
- The flea was responsible for carrying the Plague from rats to people in the middle ages
- Jumping fleas can be frozen up to one year and still revive themselves
- Fleas bite in order to feed on the blood – a female flea has to have a blood meal in order to lay eggs
- Flea bites are itchy (due to the salivary secretion from the flea, which can cause allergic reactions in humans and pets) and also dangerous because they may be a source of transfer for bacterial disease between animals and humans

Bed Bug

- Can live for up to 18 months without food
- Spend most of their time in hiding and are usually active at night
- Can be found in small cracks, crevices, carpets and on furniture, particularly in places where people sleep (hence the name)
- Bed bugs bite in order to feed on the blood of humans and other animals – they often feed at night time when people are asleep
- Not known to spread disease, but are a nuisance to get rid of (very difficult)

Honey Bee

- Live in hives with three types of inhabitants: workers, males and the queen
- Workers search for pollen and nectar from flowers
- Provide humans with honey and a special type of wax
- Passive, stings only when provoked or forced to defend the hive
- Have a barbed stinger that remains in the victim after the sting occurs. The stinger continues to pump venom into the skin after the sting has occurred
- Usually there are no serious effects of a wasp sting, although more serious allergic reactions may occur in some people

Self Evaluation and Reflection

Name: _____

Learning Skills

N - Need improvement S - satisfactory work G - good work E - excellent work

Independent Work

- | | | | | |
|--|---|---|---|---|
| <input type="checkbox"/> worked well without supervision | N | S | G | E |
| <input type="checkbox"/> followed rules and instructions independently | N | S | G | E |

Initiative

- | | | | | |
|---|---|---|---|---|
| <input type="checkbox"/> responded to a new situation or challenge | N | S | G | E |
| <input type="checkbox"/> showed interest in the activity and a willingness to learn | N | S | G | E |

Use of Information

- | | | | | |
|--|---|---|---|---|
| <input type="checkbox"/> asked questions to clarify meaning and ensure understanding | N | S | G | E |
|--|---|---|---|---|

Cooperation

- | | | | | |
|--|---|---|---|---|
| <input type="checkbox"/> showed positive relationships with other students | N | S | G | E |
| <input type="checkbox"/> helped others | N | S | G | E |
| <input type="checkbox"/> shared in cleaning duties after an activity | N | S | G | E |

Conflict Resolution

- | | | | | |
|---|---|---|---|---|
| <input type="checkbox"/> resolved conflicts in acceptable ways | N | S | G | E |
| <input type="checkbox"/> assisted others to resolve conflicts appropriately | N | S | G | E |

Class Participation

- | | | | | |
|---|---|---|---|---|
| <input type="checkbox"/> willingly worked with a new grouping | N | S | G | E |
| <input type="checkbox"/> took responsibility for my share of the work | N | S | G | E |
| <input type="checkbox"/> encouraged others to participate | N | S | G | E |

Problem Solving

- | | | | | |
|--|---|---|---|---|
| <input type="checkbox"/> applied successful strategies to new problem situations | N | S | G | E |
|--|---|---|---|---|

<p>What I did best during this activity</p>	<p>What I need to improve on and how I will achieve that goal</p>
<p>What I liked best about the activity and why I liked it</p>	<p>What I would change about the activity if given the opportunity</p>
<p>Something new I learned</p>	<p>What I would like to learn more about</p>

Teacher Resources

Diagram of the Layers of the Skin

<http://www.webmd.com/skin-problems-and-treatments/picture-of-the-skin>

Picture of the different layers of the skin.

Kids' Health – Your Skin

<http://kidshealth.org/kid/htbw/skin.html>

Easily understood information about your skin, body, and health.

National Geographic – Insects

<http://animals.nationalgeographic.com/animals/bugs>

Educational, science based website about bugs.

Ontario Species

http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/STEL01_131230.html

Information on at risk species in Ontario.

Skin Facts for Kids

<http://www.sciencekids.co.nz/sciencefacts/humanbody/skin.html>

Facts about animal and human skin.

The Nemours Foundation. “Tips for Taking Care of Your Skin.” Accessed July 9, 2011.

http://kidshealth.org/teen/your_body/take_care/skin_tips.html#.

Tips for teens about how to protect their skin.