Healthy Hands

Hand Hygiene Resource Manual

Ages: 4-14

North Bay Parry Sound District Health Unit
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Table of Contents

INTRODUCTION

(Adapted with permission from Ottawa Public Health)

The World Health Organization (WHO) identified that proper hand hygiene is the simplest and most effective method of preventing the transmission of infectious disease (Snow, White, and Kim, 2008; Nandrup-Bus, 2009). Although this is a well-known fact, there remains to be a low level of compliance with hand-washing initiatives geared toward health care professionals and school children alike (Lopez-Quintero, Freeman & Neumark, 2009). By encouraging teachers to incorporate a lesson on proper hand hygiene for elementary school students, there is the potential to improve absenteeism rates due to illness by ensuring that each student has the necessary knowledge and skills to prevent the spread of germs.

Children are taught the basic principles of hand washing early in life; however, regular reinforcement is necessary to instill proper life-long habits. Lack of resources such as time, soap, paper towels, or running water adds to the challenges of keeping students' hands clean. Healthy hand hygiene starts with children as a fundamental health practice and has the potential to foster lifelong infection prevention practices among all people.

Healthy Hands: Hand Hygiene Resource Manual, Ages: 4-14 (Winter 2019) was developed in accordance with The Ontario Curriculum to support North Bay Parry Sound District teachers, students, and their families in learning about the importance of proper hand hygiene. This resource provides lesson plans, activities, and materials for teachers to use to educate students about germs, how they are spread, and how to prevent the spread of germs through proper hand hygiene. The lesson plans and activities are intended to assist teachers with the incorporation of healthy hand hygiene into the daily routine of their classroom and students. The goal is to educate students about proper hand hygiene to reduce the incidence of gastro-enteric and respiratory infections and the consequences that accompany the transmission of such communicable diseases. North Bay Parry Sound District Health Unit is responsible for improving the health of our communities through preparation, prevention, promotion, and protection. Through this, the health unit educates and informs the public about issues related to health and wellbeing and empowers our citizens to hold themselves accountable for good hand hygiene practices. Parents and teachers share the task of making sure that proper hand hygiene begins with our youth, both in and out of the classroom. Together, we can collaboratively build a safe and healthy world in which to live, starting with basic hand hygiene.

ONTARIO CURRICULUM

Grades Kindergarten-Eight

Specific Expectations	Lesson Plan Number
KINDERGARTEN	
Belonging and Contributing	
4. demonstrate an ability to use problem-solving skills in a variety of contexts, including social context.	1, 3, 14
22. communicate their thoughts and feelings, and their theories and ideas, through various art forms.	1, 14
28. demonstrate an awareness of their surroundings.	1, 2, 3, 5
30. demonstrate an awareness of themselves as dramatists, actors, dancers, artists, and musicians through engagement in the arts.	1, 8, 14
31. demonstrate knowledge and skills gained through exposure to and engagement in drama, dance, music, and visual arts.	1, 8, 14
Self-Regulation and Well-Being	
1. communicate with others in a variety of ways, for a variety of purposes, and in a variety of contexts.	1, 2, 3, 5, 14
2. demonstrate independence, self-regulation, and a willingness to take responsibility in learning and other endeavors.	2, 3, 5, 14
3. identify and use social skills in play and other contexts.	2, 3, 5, 8
6. demonstrate an awareness of their own health and well-being.	1, 2, 3, 5, 8, 14
Demonstrating Literacy and Mathematic Behaviors	
9. demonstrate literacy behaviours that enable beginning readers to make sense of a variety of texts.	1, 2, 8
10. demonstrate literacy behaviours that enable beginning writers to communicate with others.	1, 8, 14
11. demonstrate an understanding and critical awareness of a variety of written materials that are read by and with their educators.	1, 2, 8, 14
12. demonstrate an understanding and critical awareness of media texts.	2, 8, 14
Problem Solving and Innovating	
6. demonstrate an awareness of their own health and well-being.	1, 2, 3, 5, 8, 14
9. demonstrate literacy behaviours that enable beginning readers to make sense of a variety of texts.	1, 2, 8
10. demonstrate literacy behaviours that enable beginning writers to communicate with others.	1, 8, 14
14. demonstrate an awareness of the natural and built environment through hands-on investigations, observations, questions, and representations of their findings.	1, 2, 3, 5, 8, 14

GRADE 1	
Active Living	
B1.1 Actively participate in a wide variety of program activities.	1, 2, 3, 4, 5, 7, 8, 10, 12, 13
Healthy Living	
D1.2 Demonstrate an understanding of essential knowledge and practices for ensuring their personal safety.	1, 2, 3, 4, 5, 7, 8, 13
D2.4 Apply their knowledge of essential safety practices to take an active role in their own safety at school.	7, 8, 13
D3.1 Demonstrate an understanding of how to stay safe and avoid injuries to themselves and others in a variety of situations, using knowledge about potential risks at home, in the community, when online, and outdoors.	7, 8, 13
D2.5 Demonstrate an understanding of and apply proper hygienic procedures for protecting their own health and preventing the transmission of disease to others.	7, 8, 13
Language	
B1.4 Oral and non-verbal communication	2
B1.3 Speaking purposes	2
B1.5 Word choice	2
C2.6 Summarizing: Identify important information in a simple text, including the main idea.	1, 2, 7, 8, 13
C2.5 Making connections: Identify connections between ideas expressed in simple texts and their knowledges and lived experiences, the ideas in other familiar texts, and the world around them.	1, 2, 7, 8, 13
B2.8 Reading fluency: Read simple words, short sentences, and paragraphs in a variety of texts fluently, with accuracy and appropriate pacing to support comprehension, and read aloud with expression.	1, 2, 7, 8, 13
D1.1 Purpose and audience	4, 6, 7, 8, 9, 11, 13
D2.1 Producing drafts	4, 6, 7, 8, 9, 10
B3.1 Syntax and sentence structure	4, 6, 7, 8, 9, 10
B2.4 Using phonics knowledge	4, 6, 7, 8, 9, 10
B3.3 Capitalization and punctuation	4, 6, 7, 8, 9, 10
D3.1 Producing final texts	4, 6, 7, 8, 9, 10
Science **Life Systems**	
A1.4 Follow established safety procedures and humane practices during science and technology investigations.	3,10
A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes.	3,10

B2.1 Demonstrate an understanding of the natural environment as a place where living and non-living things are interconnected.	3,10
B2.5 Describe the characteristics of a healthy environment, including clean air and water and nutritious food, and how a healthy environment enables living things to meet their needs.	3, 10
Art	
D1.3 Use elements of design in art works to communicate ideas, messages, and personal understandings.	1, 7, 13
D1.4 Use a variety of materials, tools, and techniques to respond to design challenges.	1, 7, 13
Music	
C1.1 Sing songs in unison and play simple accompaniments for music from a wide variety of diverse cultures, styles, and historical periods.	8
C1.5 Demonstrate understanding that sounds can be represented by symbols.	8

GRADE 2	
Active Living	
B1.1 Actively participate in a wide variety of program activities, according to their capabilities.	1, 2, 3, 4, 5, 7, 8,10, 12, 13
Language	
D1.2 Develop Ideas: Generate and develop ideas about given and chosen topics, using simple strategies, and drawing on various resources, including their own lived experiences, and learning from other subject areas.	2
D1.1 Purpose and Audience: Identify the topic, purpose, and audience for various texts they plan to create.	2
B1.3 Speaking purposes: Identify the purpose and audience for speaking in formal and informal contexts, and use appropriate speaking strategies, including taking turns and staying on topic, to communicate meaning clearly and coherently.	2
B1.5 Word Choice: Use appropriate word choice, including new vocabulary, grammar, and cohesive sentences when speaking and communicating ideas, to support audience comprehension.	2
B1.4 Communication Strategies: Identify and use oral and non-verbal communication strategies, including expression, gestures, and body language, and demonstrate an understanding of how these strategies can contribute to the meaning being conveyed.	2
C2.6 Summarizing: Identify the main idea in a simple text, and relate important details in sequence.	1, 2, 7, 8, 13
C2.5 Making Connections: Identify connections between ideas expressed in simple texts and their knowledges and lived experiences, the ideas in other familiar texts, and the world around them.	1, 2, 7, 8, 13
B2.5 Reading Fluency: Read words, sentences, and paragraphs in a variety of texts fluently, with accuracy and appropriate pacing to support comprehension, and read aloud with expression and intonation.	1, 2, 7, 8, 13
D1.1 Purpose and Audience: Identify the topic, purpose, and audience for various texts they plan to create.	4, 6, 7, 8, 9, 10,
D1.2 Developing Ideas: Generate and develop ideas about given and chosen topics, using simple strategies, and drawing on various resources, including their own lived experiences, and learning from other subject areas.	4, 6, 7, 8, 9, 10,
D2.1 Producing drafts: Draft short texts of various forms and genres, including personal narratives, persuasive texts, and procedural texts, using a variety of media, tools, and strategies.	4, 6, 7, 8, 9, 10,
D2.5 Revision: Make revisions to texts using feedback from others, such as adding or deleting sentences.	4, 6, 7, 8, 9, 10, 13
B3.1 Syntax and Sentence Structure: Identify and construct declarative, imperative, interrogative, and exclamatory sentences, including compound sentences.	4, 6, 7, 8, 9, 10, 13
D2.4 Point of View	4, 6, 7, 8, 9, 10, 13

B2.4 Using Phonics Knowledge: Demonstrate an understanding of a variety of words, acquire and use explicitly taught vocabulary in various contexts, including other subject areas, and use their developing morphological knowledge to analyze and understand new words in context.	4, 6, 7, 8, 9, 10, 13
B3.3 Capitalization and punctuation	4, 6, 7, 8, 9, 10, 13
D3.1 Producing final texts	4, 6, 7, 8, 9, 10, 13
Media Literacy	
A2.5 Media, Audience, and Production	7
A2.4 Forms, Conventions, and Techniques	7
A2.5 Media, Audience, and Production	7
Science **Life Systems**	
A1.4 Follow established health and safety procedures during science and technology investigations, including wearing appropriate protective equipment and clothing and safely using tools, instruments, and materials.	4, 9, 10
A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	4, 9, 10
Art	
D1.1 Create two- and three-dimensional works of art that express feelings and ideas inspired by activities in their community or observations of nature.	1, 7, 13
D1.3 Use elements of design in art works to communicate ideas, messages, and understandings.	1, 7, 13
D1.4 Use a variety of materials, tools, and techniques to respond to design challenges.	1, 7, 13
Music	
C1.1 Sing unison songs in tune and/or play simple melodies and accompaniments for music from a wide variety of cultures, styles, and historical periods.	8
C1.3 Create simple compositions for a specific purpose and a familiar audience (e.g., create accompaniments for songs, stories.	8

GRADE 3	
Active Living	
B1.1 actively participate in a wide variety of program activities	1, 4, 5, 7, 8, 9, 10, 12, 13
Healthy Living	
D2.2 Safety guidelines, outside of class	5, 7, 8, 13
Language **Oral Communication**	
B1.1 Effective listening skills and B1.2 Listening Strategies	2
B1.3 Speaking purposes	2
B1.4 Oral and non-verbal communications strategies	2
C2.5 Making Connections	1, 2, 7, 8, 13
D1.3 Research	4, 6, 7, 8, 9, 10, 12, 13
D2.1 Producing drafts	4, 6, 7, 8, 9, 10, 12, 13
D2.5 Revision	4, 6, 7, 8, 9, 10, 12, 13
B3.1 Syntax and Sentence Structure	4, 6, 7, 8, 9, 10, 12, 13
B2.4 Vocabulary	4, 6, 7, 8, 9, 10, 12, 13
D2.6 Editing and Proofreading	4, 6, 7, 8, 9, 10, 12, 13
B3.3 Capitalization and punctuation	4, 6, 7, 8, 9, 10, 12, 13
D3.1 Producing final texts, D3.2 Publishing and presenting texts	4, 6, 7, 8, 9, 10, 12, 13
Media Literacy	
A2.5 Media, Audience, and Production	7
A2.4 Forms, Conventions, and Techniques	7
Art	
D1.1 create two- and three-dimensional works of art that express personal feelings and ideas inspired by the environment or that have the community as their subject	1, 7, 13
D1.3 use elements of design in art works to communicate ideas, messages, and understandings	1, 7, 13
D1.4 use a variety of materials, tools, and techniques to respond to design challenges	1, 7, 13
Music	
C1.1 sing, in tune, unison songs, partner songs, and rounds, and/or play accompaniments from a wide variety of cultures, styles, and historical periods	8
C1.3 create compositions for a specific purpose and a familiar audience	8

GRADE 4	
Active Living	
B1.1 Actively participate in a wide variety of program activities	4, 5, 7, 8, 9, 10, 12
Healthy Living	
D2.2 Safety guidelines, outside of class	5
Language **Writing**	
D1.1 Purpose and audience	4, 6, 7, 8, 9, 10, 12, 13
D1.2 Developing ideas	4, 6, 7, 8, 9, 10, 12, 13
D1.3 Research	4, 6, 7, 8, 9, 10, 12, 13
D1.4 Organizing Content	4, 6, 7, 8, 9, 10, 12, 13
D2.1 Producing drafts	4, 6, 7, 8, 9, 10, 12, 13
B3.1 Syntax and Sentence Structure	4, 6, 7, 8, 9, 10, 12, 13
D2.6 Editing and Proofreading	4, 6, 7, 8, 9, 10, 12, 13
B3.3 Capitalization and punctuation	4, 6, 7, 8, 9, 10, 12, 13
D3.1 Producing final texts, D3.2 Publishing and presenting texts	4, 6, 7, 8, 9, 10, 12, 13
Media Literacy	
A2.5 Media, Audience, and Production	7
A2.4 Forms, Conventions, and Techniques	7
Art	
D1.1 Create two- and three-dimensional works of art that express feelings and ideas inspired by their interests and experiences.	6, 7
D1.4 Use a variety of materials, tools, and techniques to determine solutions to design challenges .	6, 7
Music	
C1.1 Sing and/or play, in tune, from musical notation, unison and two-part music with simple accompaniments from a wide variety of cultures, styles, and historical periods.	8
C1.3 Create musical compositions for specific purposes and audiences.	8

GRADE 5	
Active Living	
B1.1 Actively participate in a wide variety of program activities	5, 7, 8, 9, 10, 12
Language	
D1.1 Purpose and audience identify the topic, purpose, and audience for various texts they plan to create, and explain why the chosen text form, genre, and medium suit the purpose and audience and how they will help communicate the intended meaning.	6, 7, 8, 9, 10, 12, 13
D1.2 Developing ideas generate and develop ideas and details about various topics, such as topics related to diversity, equity, and inclusion and to other subject areas, using a variety of strategies, and drawing on various resources, including their own lived experiences.	6, 7, 8, 9, 10, 12, 13
D1.3 Research gather and record information and content relevant to a topic, using multiple textual sources; verify the reliability of sources, using simple criteria; and record the creator and source of all content created by others.	6, 7, 8, 9, 10, 12, 13
D1.4 Organizing Content select and classify ideas and collected information, using appropriate strategies and tools, and sequence content, considering the chosen text form, genre, and medium.	6, 7, 8, 9, 10, 12, 13
D2.1 Producing drafts draft texts of various forms and genres, including narrative, persuasive, and informational texts, using a variety of media, tools, and strategies.	6, 7, 8, 9, 10, 12, 13
B3.1 Syntax and sentence structure identify and construct various sentence types and forms, including compound-complex sentences, and correct sentence fragments and run-on sentences.	6, 7, 8, 9, 10, 12, 13
D2.6 Editing and Proofreading: Edit draft texts to improve accuracy and style, checking for errors in spelling, punctuation, grammar, and format; use a word processor to edit texts.	6, 7, 8, 9, 10, 12, 13
B3.3 Capitalization and punctuation use their understanding of the meaning and function of capitalization and punctuation to communicate meaning clearly and coherently, including the use of commas to set off advanced phrases or clauses such as appositives and participles, and colons for introducing a list after a complete sentence.	6, 7, 8, 9, 10, 12, 13
D3.1 Producing final texts, D3.2 Publishing and presenting texts produce final texts using a variety of techniques and tools, including digital design and production tools, to achieve the intended effect.	6, 7, 8, 9, 10, 12, 13
Media Literacy	
A2.5 Media, Audience, and Production: Demonstrate an understanding of the interrelationships between the form, message, and context of texts, the intended audience, and the purpose for production.	7
A2.4 Forms, Conventions, and Techniques: Demonstrate an understanding of the forms, conventions, and techniques of digital and media texts, consider the impact on the audience, and apply this understanding when analyzing and creating texts.	7

Science **Life Systems**	
B1.1: Assess effects of a variety of social and environmental factors on human health, and describe ways in which individuals can reduce the harmful effects of these factors and take advantage of those that are beneficial.	5, 6, 7, 9, 10, 11, 12
A1.5: Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	5, 6, 7, 9, 10, 11, 12
B2.4: Identify various diseases and medical disorders in humans and the organs and/or body system or systems that they affect.	5, 6, 7, 9,, 10, 11, 12
Art	
D1.1 Create two- and three-dimensional art works that express feelings and ideas inspired by their own and others' points of view.	6, 7
D1.4 Use a variety of materials, tools, and techniques to determine solutions to design challenges.	6, 7
Music	
C1.1 Sing and/or play, in tune, from musical notation, unison and two-part music with accompaniments, from a wide variety of cultures, styles, and historical periods.	8
C1.3 Create musical compositions for specific purposes and audiences.	8

GRADE 6	
Active Living	
B1.1 Actively participate in a wide variety of program activities *(e.g., lead-up games, recreational activities, fitness activities, dance)*, according to their capabilities, while applying behaviours that enhance their readiness and ability to take part.	5, 7, 8, 9, 10, 12
Language **Writing**	
D1.1 Purpose and audience: Identify the topic, purpose, and audience for various texts they plan to create, and explain why the chosen text form, genre, and medium suit the purpose and audience, and how they will help communicate the intended meaning.	6, 7, 8, 9, 10, 12, 13
D1.2 Developing ideas: Generate and develop ideas and details about various topics, such as topics related to diversity, equity, and inclusion and to other subject areas, using a variety of strategies, and drawing on various resources, including their own lived experiences.	6, 7, 8, 9, 10, 12, 13
D1.3 Research: Gather information and content relevant to a topic, using multiple textual sources; summarize the information; verify the reliability of sources; and record the creator and source of all content created by others.	6, 7, 8, 9, 10, 12, 13
D2.1 Producing drafts: Draft complex texts of various forms and genres, including narrative, expository, and informational texts, using a variety of media, tools, and strategies.	6, 7, 8, 9, 10, 12, 13
B3.1 Syntax and sentence structure: Use their knowledge of sentence types and forms to construct sentences that communicate ideas effectively, including using and creating complex sentences with adjective or relative clauses to express relationships among ideas.	6, 7, 8, 9, 10, 12, 13
B3.3 Capitalization and Punctuation: Use their understanding of the meaning and function of capitalization and punctuation to communicate meaning clearly and coherently, including the use of colons in formal letters and memo salutations and to indicate a new speaker in script dialogue, and commas after transitional words or phrases.	6, 7, 8, 9, 10, 12, 13
D3.1 Producing final texts **D3.2 Publishing and presenting texts**	6, 7, 8, 9, 10, 12, 13
Media Literacy	
A2.5 Media, Audience, and Production	7
A2.4 Forms, Conventions, and Techniques: Demonstrate an understanding of the forms, conventions, and techniques of digital and media texts, consider the impact on the audience, and apply this understanding when analyzing and creating texts.	7
Science **Life Systems**	
A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	5, 6, 7, 9, 10, 11, 12

Art	
D1.1 Create two-dimensional, three-dimensional, and multimedia art works that explore feelings, ideas, and issues from a variety of points of view. **D1.4** Use a variety of materials, tools, techniques, and technologies to determine solutions to design challenges.	6, 7 6, 7
Music	
C1.3 Create musical compositions for specific purposes and audiences.	8

GRADE 7	
Active Living	
B1.1 Actively participate in a wide variety of program activities, according to their capabilities *(e.g., individual activities, small- and large-group activities, movement and rhythmic activities, dance, outdoor pursuits)*, while applying behaviours that enhance their readiness and ability to take part.	6, 7, 8, 9, 10, 11, 12
Healthy Living	
D3.1 Demonstrate an understanding of personal and external factors that affect people's food choices and eating habits.	6, 7, 8, 9, 10, 11, 12
Language **Writing**	
D1.1 Identify the topic, purpose, and audience for various texts they plan to create, and explain why the chosen text form, genre, and medium suit the purpose and audience, and how they will help communicate the intended meaning.	6, 7, 8, 9, 10, 11, 12
D1.2 Generate and develop ideas and details about various topics, such as topics related to diversity, equity, and inclusion and to other subject areas, using a variety of strategies, and drawing on various resources, including their own lived experiences.	6, 7, 8, 9, 10, 11, 12
D1.3 Gather information and content relevant to a topic, using multiple textual sources; summarize the information; verify the reliability of sources; and record the creator and source of all content created by others.	6, 7, 8, 9, 10, 11, 12
D1.4 Organizing content: Classify and sequence ideas and collected information, using appropriate strategies and tools, and identify and organize relevant content, taking into account the chosen text form, genre, and medium.	6, 7, 8, 9, 10, 11, 12
D2.1 Producing Drafts: Draft complex texts of various forms and genres, including narrative, expository, and informational texts, using a variety of media, tools, and strategies.	6, 7, 8, 9, 10, 11, 12
D2.5 Revision: Make revisions to the content, elements of style, patterns, and features of draft texts, and add, delete and re-sequence sentences to improve clarity, focus, and coherence, using various strategies and seeking and selectively using feedback.	6, 7, 8, 9, 10, 11, 12
B3.1 Syntax and sentence structure: Use their knowledge of sentence types and forms to construct sentences that communicate ideas effectively, including using and creating complex sentences that combine phrases and clauses to express relationships among ideas.	6, 7, 8, 9, 10, 11, 12
B3.3 Capitalization and punctuation: Use their understanding of the meaning and function of capitalization and punctuation to communicate meaning clearly and coherently, including the use of colons to introduce a quotation after a complete sentence, semicolons to separate two independent clauses, commas to set off conjunctive adverbs, and ellipses or dashes to indicate an omission, a pause, or a break.	6, 7, 8, 9, 10, 11, 12

D3.1 Producing Final Texts: Produce final texts, selecting a variety of suitable techniques and tools, including digital design and production tools, to achieve the intended effect	6, 7, 8, 9, 10, 11, 12
Media Literacy	
A2.5 Media, Audience, and Production: Demonstrate an understanding of the interrelationships between the form, message, and context of texts, the intended and unintended audience, and the purpose for production.	7
A2.4 Forms, Conventions, and Techniques: Evaluate the use of the various forms, conventions, and techniques of digital and media texts, consider the impact on the audience, and apply this understanding when analyzing and creating texts.	7
Science **Life Systems**	
A1.1 Use a scientific research process and associated skills to conduct investigations.	9, 10, 11
A1.2 Use a scientific experimentation process and associated skills to conduct investigations.	9
A1.4 Follow established health and safety procedures during science and technology investigations, including wearing appropriate protective equipment and clothing and safely using tools, instruments, and materials.	9
A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	7, 9, 10, 11
Art	
D1.1 Create art works, using a variety of traditional forms and current media technologies, that express feelings, ideas, and issues, including opposing points of view.	6, 7
D1.4 Use a variety of materials, tools, techniques, and technologies to determine solutions to increasingly complex design challenges.	6, 7
Music	
C1.3 Create musical compositions in a variety of forms for specific purposes and audiences.	8

GRADE 8	
Active Living	
B1.1 Actively participate according to their capabilities in a wide variety of program activities *(e.g., individual, small-group, and large-group activities; movement and rhythmic activities; dance; outdoor activities on the land)* [A1.3 Motivation, 1.5 Self].	6, 7, 8, 9, 10, 11, 12
Language **Writing**	
D.1.1 Purpose and Audience: Identify the topic, purpose, and audience for various texts they plan to create; choose a text form, genre, and medium to suit the purpose and audience, and justify their choices.	6, 7, 8, 9,10, 11, 12
D1.2 Developing Ideas: Generate and develop ideas and details about challenging topics, such as topics related to diversity, equity, and inclusion and to other subject areas, using a variety of strategies, and drawing on various resources, including their own lived experiences.	6, 7, 8, 9, 10, 11, 12
D1.3. Research: Gather and synthesize information and content relevant to a topic, using a variety of textual sources and appropriate strategies; evaluate the currency, quality, bias, and accuracy of information; verify the reliability of sources; and cite the sources of all content created by others.	6, 7, 8, 9, 10, 11, 12
D.1.4 Organizing Content: Classify and sequence ideas and collected information, selecting effective strategies and tools, and identify and organize relevant content, evaluating the choices of text form, genre, and medium, and considering alternatives.	6, 7, 8, 9, 10, 11, 12
D2.1 Producing Drafts: Draft complex texts of various forms and genres, including narrative, persuasive, expository, and informational texts, citing sources, and use a variety of appropriate media, tools, and strategies to transform information and communicate ideas.	6, 7, 8, 9, 10, 11, 12
B3.1 Syntax and Sentence Structure: Use their knowledge of sentence types and forms to construct increasingly complex sentences that connect and communicate ideas accurately and effectively.	6, 7, 8, 9, 10, 11, 12
D2.6 Editing and Proofreading: Edit draft texts to improve accuracy and style, checking for errors in spelling, punctuation, grammar, and format; edit digital texts using word-processing software, including spell- and grammar-checkers.	6, 7, 8, 9, 10, 11, 12
B3.3. Capitalization and Punctuation: Use and refine their understanding of the meaning and function of capitalization and punctuation to communicate meaning clearly and coherently, when reading and writing.	6, 7, 8, 9, 10, 11, 12
B3.2 Grammar: Demonstrate an understanding of the functions of parts of speech in sentences, refine their understanding of grammar, and use this knowledge to support comprehension and communicate meaning clearly and precisely.	6, 7, 8, 9, 10, 11, 12
D3.1 Producing Final Texts: Produce final texts using appropriate techniques and tools, including digital design and production tools, to achieve the intended effect.	6, 7, 8, 9, 10, 11, 12

Media Literacy	
A2.5 Media, Audience, and Production: Demonstrate an understanding of the interrelationships between the form, message, and context of texts, the intended and unintended audience, and the purpose for production.	7
A2.4 Forms, Conventions, and Techniques: Evaluate the use of the various forms, conventions, and techniques of digital and media texts, consider the impact on the audience, and apply this understanding when analyzing and creating texts.	7
Science **Life Systems**	
A1.1 Use a scientific research process and associated skills to conduct investigations.	7, 9, 10, 11
A1.2 Use a scientific experimentation process and associated skills to conduct investigations.	11
A1.4 Follow established health and safety procedures during science and technology investigations, including wearing appropriate protective equipment and clothing and safely using tools, instruments, and materials.	11
A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	11
Art	
D1.1 Ccreate art works, using a variety of traditional forms and current media technologies, that express feelings, ideas, and issues, including opposing points of view.	6, 7
D1.4 Use a variety of materials, tools, techniques, and technologies to determine solutions to increasingly complex design challenges.	6, 7

THE 5 STEPS OF HEALTHY HAND WASHING:

CAN'T WASH? USE AN ALCOHOL-BASED HAND SANITIZER:

- Before eating
- After coughing, sneezing, or blowing your nose
- After touching animals
- When you are sick

ASSESSMENT: HOW MUCH DO THE STUDENTS KNOW?

(Adapted with permission from Ottawa Public Health)

This can be completed by the teacher to compare the students' knowledge before and/or after hand hygiene instruction.

Circle a number from 1 to 5 to indicate your opinion about the students' knowledge.

In your opinion, most of the students:

	Low				**High**
1. Can explain how germs are spread	1	2	3	4	5
2. Can state the best way to prevent germs from spreading	1	2	3	4	5
3. Can recall the 5 steps of healthy hand washing	1	2	3	4	5
4. Can simulate proper hand washing techniques	1	2	3	4	5
5. Can identify when to wash hands	1	2	3	4	5
6. Can tell the difference between the need for hand washing and for using hand sanitizer	1	2	3	4	5

LESSON PLANS

Grades Kindergarten-Eight

LESSON PLAN #1: WHAT ARE GERMS?

1- 2 hours or multiple lessons

(Adapted with permission from GOJO Industries, Inc., creators of PURELL Instant Hand Sanitizer, www.education.gojo.com)

Learning Objectives:

1. Create their own 3D model of a germ
2. Explain how germs harm us

Learning Goals:

In this lesson, students will be learning about how germs are tiny living organisms that make us sick

Materials:

- Crayons
- Germs Colouring Sheet
- Paper
- Projector/Apple TV
- Internet access
- Paint
- Ipad/Laptop

Steps:

1. The teacher will ask the class if they have ever heard of germs before. They can ask the following probing questions:
    a. Does anyone know what a germ is?
    b. Has anyone ever seen a germ?
    c. What does a germ do to people like me, you and our parents?
2. Explain to the class that germs are tiny living things (microorganisms) that can make us sick. Explain that germs cannot be seen by using their eyes and that a microscope (like a giant magnifying glass) can be used to see germs. Explain that there are many types of germs using the "Germs" – Colouring Sheet.
3. The teacher can show the class a picture of a Germ on a projector screen/apple TV
4. Provide each student with a "Germs" – Colouring Sheet.
5. Have students discuss the shape of the germs. The teacher can ask the students to talk with a partner about germs for a few minutes and then they can discuss as a class.
6. Give the students a blank piece of paper to draw a germ of their own and give it a name. The students can paint/draw/use technology.
7. Use classroom materials to build a model germ. The teacher can separate the class into small groups- the groups will create a 3D germ model.

How to differentiate instruction:

1. Students can use an iPad, laptop or any form of technology in higher grades to create their germs.
2. Students with fine motor skill difficulties, or sensory processing disorder (SPD) can use paper to colour or draw their germ.
3. For older classrooms the teacher can show the students pictures of real germs under a microscope from Google Images.

Adaptations for Kindergarten

1. Have students colour the germs, cut them out, and glue them on a hand
2. Have another colouring sheet with smaller germs

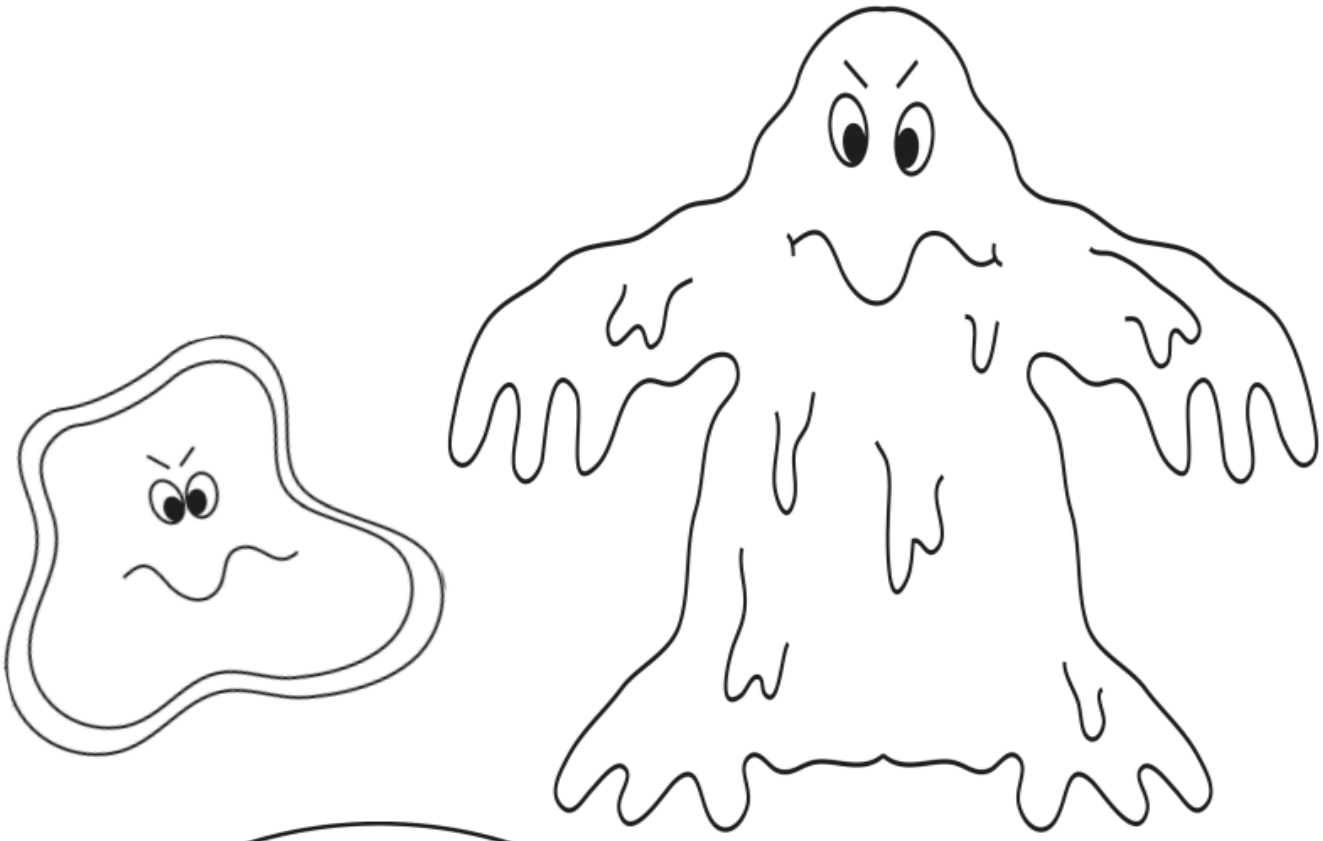
Adaptations (Indigenous/Rural)

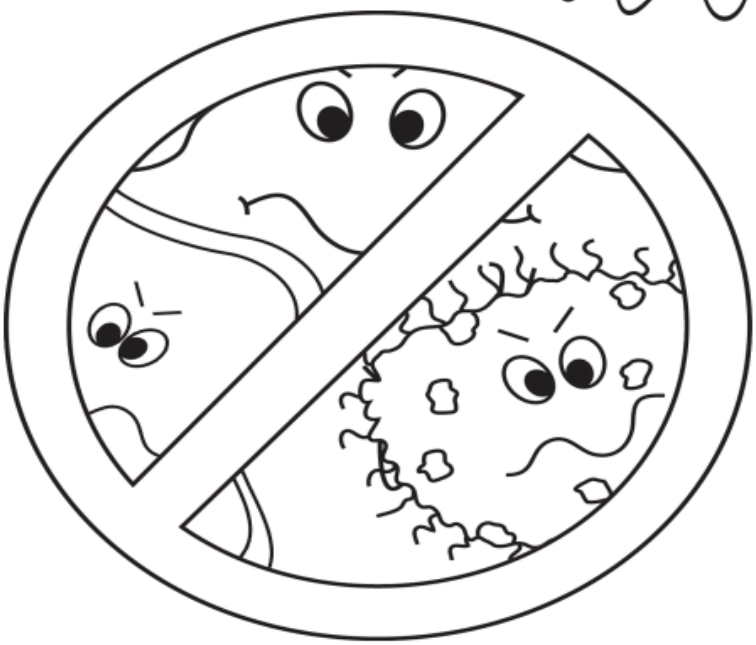
When talking about washing hands, ask students if they know when they should wash their hands.

Talk about washing hands after playing/working outside.

Assessment:

1. The teacher should take notes reflecting the students' work habits and specifically chosen learning skills. The teacher can use a notepad, checklist or rating scale.





Micro-organisms do good things, like break down waste, but they can also make us sick.

For more educational printables visit crystalandcomp.com.

LESSON PLAN #2: SICK SIMON READING WITH SPRAY BOTTLE

45 Minutes- 1.5 Hours

Learning Objectives:

1. Explain how germs are spread
2. Explain what to do to prevent the spread of germs

Learning Goals:

In this lesson, students will be learning about:

1. How germs are spread
2. How to prevent germs from spreading

Materials:

- *Sick Simon* hard cover book (author: Dan Krall) or YouTube link.
- Computer and internet access (if using YouTube).
- Spray bottle filled with fresh clean water. Setting should be on a very fine mist.
- Cut out of a cartoon face. The teacher will cut out a nose and use the spray bottle as a nose.

Steps:

1. Explain to the class that germs are tiny living things (microorganisms) that can make us sick. Explain that germs cannot be seen by using their eyes and that a microscope (like a giant magnifying glass) can be used to see germs. Explain that germs can be found everywhere and can be removed from hands with proper hand washing techniques using soap and water or hand sanitizer.
2. Have the students sit in a circle on the carpet or arrange their seats how you typically would for *story time.*
3. Explain to the students that in this book there is a little boy who has a very bad cold- at this point introduce the *Simon Spray Bottle* to the students.
4. The teacher or the YouTube video will begin to read the story, when book says "Achooo!" or insinuates/says that Simon has coughed/sneezed/spread germs in anyway, the teacher will spray the bottle of water on the class. It is important that the spray bottle is on a very fine mist setting to mimic a sneeze or cough. With a class of younger students, you may tell the students that they will be getting sprayed and for older level classes you can keep it a surprise for a more realistic experience.

How to differentiate instruction:

1. For a group of older students who can read on their own, the teacher may separate the students into pairs or small groups. The teacher can circulate the classroom and take notes for Reading and Oral Communication grades.

2. In a classroom that cannot facilitate a reading circle, the teacher may circulate the classroom while reading or listening on YouTube, with *Simon Spray Bottle* and spray a different area of students each time.
3. For students that may be scared of the spray bottle or do not understand- the YouTube video does a good job of making the sneeze sound very real, without having to use the spray bottle.

Adaptations for Kindergarten:
Using a worksheet, have students circle/colour the correct picture to go with their answer.

Adaptations for Indigenous/Rural
When talking about washing hands, ask students if they know when they should wash their hands in their specific context.

Talk about washing hands after playing/working outside.

Assessment Method:
1. Provide the students with a worksheet containing questions about germs, and instruct them to circle the correct answer. Example: When you sneeze or cough, should you: cough into your hands, cough into your sleeve, just cough without covering?

Grade 3 Language- Listening skill assessment:

Students can do a drawing of what they think they should do when they cough/sneeze to prevent germs from spreading.

LESSON PLAN #3: GERM SENSORY BIN

45 Minutes- multiple periods (needs a break in between)

Learning Objective:
Show their understanding of how to properly wash their hands
Learning Goals:
In this lesson, students will be learning about how to properly wash their hands.

Refer to p. 26 for 5 steps for handwashing

Materials:

- Rubbermaid bin or sensory bin.
- Sink, soap, water and sponges.
- Play-dough, clay or something that will stick to object to model germs.
- Random waterproof objects for students to clean- small action figures/dolls, blocks, Tupperware, Frisbee, etc.
- Towel/paper towel.
- Hand sanitizer.

Steps:

1. The teacher will present all the objects to the students. The teacher will pass out on object per student/pair (depending on class size). The teacher will also pass out small pieces of play dough/clay.
2. The teacher will explain to the class that germs are tiny living things (microorganisms) that can make us sick. Explain that germs cannot be seen by using their eyes and that a microscope (like a giant magnifying glass) can be used to see germs. Explain that germs can be found everywhere and can be removed from hands with proper hand washing techniques using soap and water or hand sanitizer.
3. The teacher will explain to the students that in this activity the play dough will be modeling germs. The teacher will then let the students fill their objects with germs (play dough). Once the class is done the students will sit their objects by a window to dry and harden for a period of time.
4. Once the play dough is dry, the students will wash the germs off from their objects.
5. The teacher can set up multiple sensory bins, or the students can take turns coming to clean their objects. The teacher will ensure to reiterate the importance of the five steps of hand washing.
6. The students will clean their objects with soap and water; they should use the sponges to ensure their objects are extra clean. The students should then dry their objects and finish using hand sanitizer on their own hands.
7. This lesson should end with a group discussion on hand washing and the five steps to healthy hands.

How to differentiate instruction:

1. For a group of older students (grade 2 and higher) this activity can be an introduction to hand washing. The students can have a thorough discussion at the end of the activity regarding what techniques worked best for cleaning their objects. Students could also write a self-reflection or journal after this assignment.
2. If the teacher does not have access to enough sensory bins the teacher can have pairs of students come in front of the class to take turns cleaning their objects. The teacher can explain to the class how the pair is cleaning, if the dirt is coming off and what steps they are using.
3. If the teacher has a very busy class, this can also be done as just a teacher demonstration. The students can sit in a circle around the sensory bin while the teacher demonstrates the five steps of hand washing. The students could then discuss as a class what was done.
4. Consider students with SPD and adapt accordingly.

Kindergarten Adaptation:

Take the students outside to do this activity to keep the classroom clean.

Adaptation (Indigenous/Rural):

When discussing washing hands, ask students if they know when they should wash their hands.
Take the students outside for this activity
Talk about washing hands after playing/working outside.

Assessment Method:

1. The teacher should take notes reflecting the students' work habits and specifically chosen learning skills. The teacher can use a notepad, checklist or rating scale. The teacher should let the students know what he or she will be looking for during this activity.

LESSON PLAN #4: WHERE DO GERMS LIVE?

45 Minutes- 1.5 Hours

Learning Objectives:

1. Explain where germs are from and where they live
2. Explain steps they need to take to stay safe from germs

Learning Goals

In this lesson, students will be learning about:

1. Where germs come from
2. Where germs live
3. How to stay safe from germs

Steps:

Brainstorm with students where they think germs might live. Write their ideas on the board. Guide the discussion to include common places like:

- Surfaces (countertops, tables, doorknobs)
- Hands
- Food
- Water
- Animals
- Air
- Inside our bodies (mouth, nose, throat, intestines)

Where Are the Germs?**

1. Divide the class into small groups and give each group a scenario card. The scenarios should describe a situation where germs might be present (e.g., a child sneezing without covering their mouth, a family sharing snacks). Ask each group to discuss where they think germs might be in that situation.
2. After a few minutes, each group shares their ideas with the class. Encourage discussion and ask students to explain their reasoning.
3. As a class, create a master list of places where germs might be found based on the scenarios.

Scenarios/Settings:

Bus/Bus station, park, washrooms, school, home, store, restaurant, barn, lakes/rivers

1. Explain to the class that germs are tiny living things (microorganisms) that can make us sick. Explain that germs cannot be seen by using their eyes and that a microscope (like a giant magnifying glass) can be used to see germs. Explain that germs can be found everywhere and can be removed from hands with proper hand washing techniques using soap and water or hand sanitizer (see Page 10).

How to differentiate instruction:

Change the scenarios based on the students. Use photos for students who cannot read.

Adaptation for kindergarten:

Provide a photo and picture of the scenario for younger grades.

Adaptation for Indigenous/Rural:

Scenario cards should be diverse, with relevant scenarios for all students.

Assessment Method:

1. Students can act out their scenario and use it for a drama grade.

Curriculum expectations for this lesson:

Health:

Grade 1: D1.2, D2.5, D3.1

Grade 2: D1.1

Drama:

Grades 1-6

B1.1

LESSON PLAN #5: CLEAN TAG

15-25 Minutes
(Used with permission from GOJO Industries, Inc., creators of PURELL Instant Hand Sanitizer, www.education.gojo.com)

Learning Goals:
Students will recognize that germs can be spread easily from one to another and that the spread of germs can be reduced by proper hand washing. The students will participate in healthy living and DPA.

Materials:
- Open area

Steps:
1. Review the steps and the purpose of proper hand washing (see page 10).
2. Explain to students that they will be playing "Clean Tag". Select four students to play special roles: two students will be disease-causing germs, a third will be hand washer (soap & water), a fourth will be hand sanitizer. Tell the remaining students to run away from the germs.
3. If one of the germs happens to tag them, they must immediately freeze and stand with their legs far enough apart to make a tunnel through which someone can crawl.
4. The hand washer and hand sanitizer are the only ones who can unfreeze (clean) the frozen (contaminated) students – by crawling through the tunnel between their legs.
5. "Cleaned" students are then free to run around again.
6. Have the students trade roles at various points during the game.
7. Have the students discuss what happened when they were tagged by the germs. What happens in real life? (They can make you sick).
8. Explain what happened when they were *cleaned* by the hand washers? What would happen if there were no hand washers in the game? What would happen if there were no hand washers in real life? What would happen in the game if there were 1 germ and 4 hand washers?
9. Discuss with students what these findings mean in their personal life. How does this change their hand washing habits?

Differentiation:

Accessibility: If there is a student who is unable to run/walk, students who are tagged can run to them and answer a question about hand hygiene to be able get back in the game

LESSON PLAN #6: CREATE YOUR OWN GERMS

(Adapted with permission from Ottawa Public Health)

Learning Objectives:

Students will recognize and create different types of bacteria using modeling clay.

- Germs are microorganisms that include bacteria and viruses.
- Some examples of illnesses caused by bacteria are strep throat, Lyme Disease, food poisoning.
- Some examples of illnesses caused by viruses are flu, cold, chicken pox, and hepatitis.
- Germs must get into your nose, mouth, eyes, cuts or scrapes to cause infection (e.g. by rubbing eyes, rubbing nose, eating, biting nails).
- Washing with soap and water removes germs from your hands.
- Cleaning your hands with hand sanitizers kills germs. However, it does not remove residue, such as food or dirt, from your hands. If your hands are visibly dirty or you may have food residue (such as peanut butter) that can cause an allergic reaction you should use soap and water to clean your hands.
- Washing your hands properly can prevent the spread of many illnesses.

Materials:

- "Magnified Bacteria and What They Do!" chart
- 2 cups of flour (500 ml)
- 1 cup of salt (250 ml)
- 1 tablespoon of oil (15 ml)
- 1 cup of hot water (250 ml)
- Food colouring or paint

Steps:

1. Teacher shows the students the chart "Magnified Bacteria and What They Do!" and discusses learning objectives.
2. Students will mix modeling clay from the ingredients listed above and create their own bacteria shapes based on those from the chart.
3. Teacher will point out that bacteria and viruses are so small they cannot be seen and can be all over hands and under fingernails just like clay.
4. Discuss proper steps to hand washing (see page 10).
5. Students will demonstrate proper hand washing techniques when washing off the clay.
6. Describe the level of difficulty of removing the clay from wrists, hands, fingers, and nails.
7. Have students name their bacteria and write a short story from the point of view of the bacteria, including efforts to stay on hands during hand washing.

MAGNIFIED BACTERIA AND WHAT THEY DO!

(Adapted with permission from Ottawa Public Health)

Name of Bacteria	What it Looks Like	Where it is Found	What it Does!
Escherichia coli		In the stomachs of animals, especially cattle, and humans.	Commonly causes diarrhea, vomiting and stomach cramps. Can have serious complications.
Staphylococcus aureus		On human skin, in nose and throat.	Commonly causes skin and wound infections. Also causes pimples.
Salmonella enteritidis		In the stomachs of animals, especially chickens and humans.	Causes diarrhea and vomiting. One of the most common causes of food poisoning.
Streptococcus pyogenes		In the throats and nose of humans.	Very common cause of sore throats. Can also cause skin infections.

LESSON PLAN #7: SCHOOL POSTERS

45 minutes-1 hour or multiple days

Learning Objective:
The students will create posters to raise awareness around the school regarding hand washing and how to stop spreading germs. Students will use their language skills to demonstrate their learning on hand washing.

Materials:

- Construction paper
- Scissors
- Glue
- Various arts and crafts supplies- pompoms, glitter, pencil crayons etc.
- 5 steps of hand washing original poster
- Students in grades 6-8 could use technology to create their posters

Steps:

1. The teacher will remind the students of the 5 steps of hand washing from the North Bay Parry Sound District Health Unit.
2. The students will be instructed to create their own posters to inform their fellow students, teachers and guests of the school of healthy hand washing practices.

How to differentiate instruction:

1. Students with SPD can draw their bacteria.
2. For a group of older students, or a student with fine motor skill difficulties, the teacher may choose to give the option of using technology. The students may use a graphic design program if available or a typing program to assist with writing. A student with visual impairments would also benefit from the use of a graphic design program with enhanced size.

Adaptations (Indigenous/Rural):
Allow them to choose how they wish to create their poster based on their background.

Have them focus on handwashing within their context.

Method:

1. The teacher should take notes reflecting the students' work habits and specifically chosen learning skills. The teacher can use a notepad, checklist or rating scale. The teacher should let the students know what he or she will be looking for during this activity.
2. If the teacher would like they can also use this activity to grade students in the languages and art curriculum. This activity can also be easily transformed into the French Language. The teacher can also take elements from both rating scale examples and grade the students on both areas of curriculum.

LESSON PLAN #8: HAND WASHING SONGS

20 – 40 minutes
(Adapted with permission from Ottawa Public Health)

Learning Objective:

Students will demonstrate the steps of proper hand washing for a minimum of 20 seconds.

Materials:

- One of the songs or chants included on the next page
- *To add to the experience a sink*

Steps:

1. Review the five steps of proper hand washing.
2. Teach and sing the songs or chants listed below.
3. While students are simulating hand washing techniques, everyone sings or chants the same tune, for approximately 20 seconds.
4. To add to the experience for the students, they can wash their hands in the class sink or take turns in the school bathroom. If you do not have a sink in the classroom, it would be helpful to have both a male and female teacher for the visit to the bathroom.

How to differentiate instruction:

1. For a group of older students, the teacher may challenge them to write their own Hand Washing Song. The teacher may pair the students up or initiate group work. The teacher can remind the students of other classic sing along songs such as *Happy Birthday, Wheels on the Bus, Frere Jacque, Head Shoulders Knees and Toes, etc.*
2. The teacher can print out the Hand Washing song for the students; they can then add this to their Poster (if doing that project) or add their own song to the posters.

Assessment Method:

1. The teacher should take notes reflecting the students' work habits and specifically chosen learning skills. The teacher can use a notepad, checklist or rating scale. The teacher should let the students know what he or she will be looking for during this activity.
2. If the teacher chooses to have the students write their own song this assignment can be tied into a language or music assessment.

Grade 4 Language- Rating Scale Example:

- The student can use a variety of vocal effects using range, pitch, volume, etc. to add to the effectiveness of the song.

  1 2 3 4 5

- The student can write a song that is appropriate for their grade level.

  1 2 3 4 5

- The student can recognize how the songs are written (like a poem) and mimic the style in their own song.

  1 2 3 4 5

Grade 5 Music- Rating Scale Example:

- The student can sing to the correct tune.

  1 2 3 4 5

- The student can create a song appropriate for the audience.

  1 2 3 4 5

Leaning Skills

- The student approaches the project with a positive attitude.

  1 2 3 4 5

Songs:

This is the Way We Wash our Hands (tune: Mulberry Bush)

This is the way we wash our hands
Wash our hands
Wash our hands
This is the way we wash our hands
Before we eat our food…… (continue the song with variations; After we cough or sneeze, after we use the bathroom, After we play outside, etc.)

Wash Your Hands (tune: Row, Row, Row, Your Boat)

Wash, wash, wash, your hands
Many times a day
Scrub and rub and rinse and dry
Germs will go away

Scrub-A-Dub (tune: Farmer in the Dell)

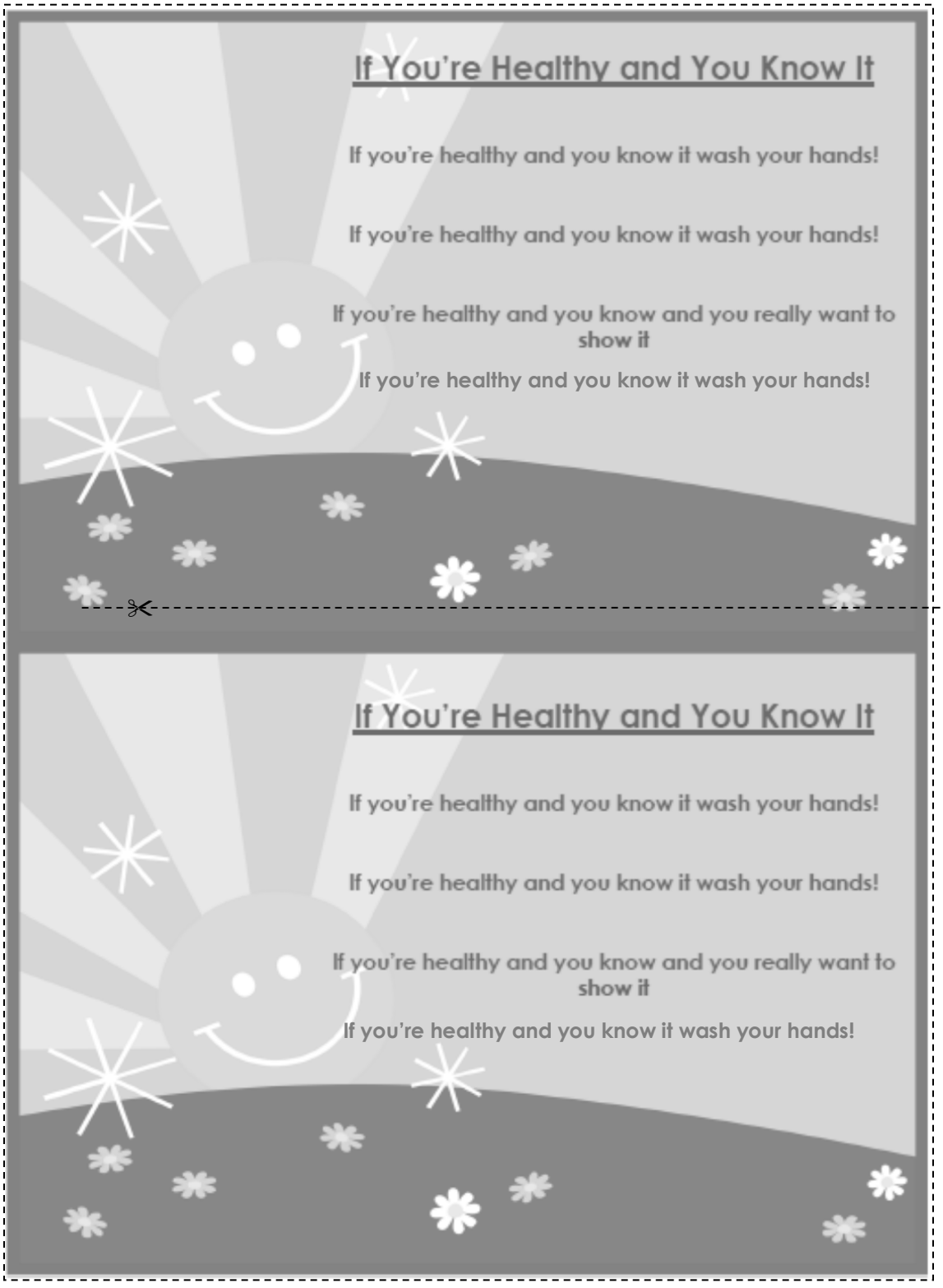
Turn the faucet on; make sure the water's warm
Put the soap right on your hands, and make a soapy storm.
Scrub-a-dub each hand, each finger, thumb, and wrist.
Scrub-a-dub all over them, so not a spot is missed.

Soap and Water (tune: Twinkle, Twinkle)

Soap and water, that's the way,
You can wash the germs away.
Keep on washing-when you do,
You'll get rid of germs, it's true.
Now your hands are clean, here's why:
Germs are down the drain. Goodbye!


If You're Healthy and You Know It
If you're healthy and you know it wash your hands!
If you're healthy and you know it wash your hands!
If you're healthy and you know and you really want to show it


If You're Healthy and You Know It
If you're healthy and you know it wash your hands!
If you're healthy and you know it wash your hands!
If you're healthy and you know and you really want to show it


If You're Healthy and You Know It
If you're healthy and you know it wash your hands!
If you're healthy and you know it wash your hands!
If you're healthy and you know and you really want to show it
If you're healthy and you know it wash your hands!
If You're Healthy and You Know It
If you're healthy and you know it wash your hands!
If you're healthy and you know it wash your hands!
If you're healthy and you know and you really want to show it
If you're healthy and you know it wash your hands!

LESSON PLAN #9: BREAD EXPERIMENT

First lesson- 30 minutes – 1 hour. Multiple days.

Learning Objective:

The student will study how easily it is to transfer germs. The students will hypothesis and complete an experiment regarding the transfer of germs. The students will learn about proper hand washing techniques and how to stay safe from germs.

Materials:

- Very fresh bread-preferably from a local bakery (this experiment will not work if you decide to use big box store brands; *Dempster's, Wonder Bread, etc.)*
- *Ziplock* plastic bags
- Bread experiment worksheet

Steps:

1. The teacher will explain to the class that germs are tiny living things (microorganisms) that can make us sick. Explain that germs cannot be seen by using their eyes and that a microscope (like a giant magnifying glass) can be used to see germs. Explain that germs can be found everywhere and can be removed from hands with proper hand washing techniques using soap and water or hand sanitizer (see Page 10).
2. The Bread experiment will be introduced to the classroom. The teacher will wash his or her hands using the five-step method and will then place one piece of fresh bread into a *Ziplock* bag.
3. The teacher will explain to the classroom that it is very easy to transfer germs around- the teacher will pass a piece of fresh bread around the classroom. The students will be asked to look at it, examine it and see that it is just a normal piece of bread. Once the bread has made it all the way around the classroom the teacher will take the bread and put it into the *Ziplock* bag.
4. All the students will then be asked to go and wash their hands, using the five step method. The teacher will also wash his or her hands.
5. The students will then be given the bread experiment worksheet. The students will individually fill out the work sheet and hypothesis what they think will happen to each piece of bread. The students will complete a daily journal regarding what the bread looks like and if there are any changes.

*At the end of the week, if the bread was fresh enough, the bread that was passed around the classroom should have started to grow mold and turn different colors. The bread that was touched with clean hands (not passed around) should look the same as it did at the beginning of the week. Sometimes if the classroom environment is not right (too hot, no sun, etc.) this experiment will not work- it may be beneficial to try the experiment quietly on your own before introducing it to the students.

How to differentiate instruction:

- For a group of older students this experiment can be the introduction to a science lesson surrounding biology. This can also be graded as a science mark regarding making hypothesis and studying something for a longer period of time.
- This experiment can easily be tied into a language activity for younger classes. Students can be instructed to practice using full sentences and punctuation in their journals and hypothesis.
- If you have a classroom that is very busy this experiment can be done without passing the bread around the classroom. The teacher can cough in their hands, touch the ground and then touch the bread and put it in the bag.

Adaptations (Kindergarten)

- Kindergarten curriculum: 13.2 make predictions and observations before and during investigations

Students can draw their hypothesis

Assessment Method:

1. The teacher can collect the hypothesis and give the students a yes or no mark for completion. The students should not be graded on whether their hypothesis is correct, rather if it is an educated guess. If the teacher would like to add a language component to the assignment they may.

Grade 2 Language- Rating Scale Example:

- The student spells words that they have been familiarized with.
  1 2 3 4 5
- Gather information and ideas for their hypothesis.
  1 2 3 4 5
- The student recognizes that a hypothesis should be a statement, not a question.
  1 2 3 4 5

Grade 6 Science- Rating Scale Example:

- The student recognizes that the bread will change in some way after one week.
  1 2 3 4 5
- The student uses appropriate science terminology and vocabulary to explain their hypothesis.
  1 2 3 4 5
- The student demonstrates an understanding of biodiversity and how germs work in the environment.
  1 2 3 4 5

Checklist Example:

- The student used full sentences to complete their hypothesis: **Yes ____ No _____**
- The student made an educated guess and previous science knowledge to create a hypothesis: **Yes _____ No _____**
- The student actively participated in the lesson: **Yes _____ No _____**
- The student completed their hypothesis independently: **Yes _____ No _____**

LESSON PLAN #10: HOW CLEAN ARE YOUR HANDS? (GLO-GERM)

(Adapted with permission from Ottawa Public Health)

Learning Objective:
The students will recognize that germs can be on their hands even though they cannot be seen and that hand washing can remove germs from hands.

Materials:

- Glo-Germ Powder
- UV Flashlight
- Hand washing facilities
- Soap
- Paper towel

NOTE: Material Safety Data Sheets for Glo-Germ Powder and UV Flashlight are included in this resource kit (pages 76-78)

Steps:

1. Explain to the class that germs are tiny living things (microorganisms) that can make us sick. Explain that germs cannot be seen by using their eyes and that a microscope (like a giant magnifying glass) can be used to see germs. Explain that germs can be found everywhere and can be removed from hands with proper hand washing techniques using soap and water or hand sanitizer.
2. Place a small amount of Glo-Germ Powder on each student's hands and have the students rub the powder all over their hands. Explain that, like the powder, germs are on their hands although they cannot see them.
3. Have students place their hands under the UV light (you may have to dim the lights in the room). The areas where there is Glo-Germ will glow under the light.
4. Have the students wash hands using the proper technique and then look at their hands under the UV light again. There should be a significant reduction in the areas that glow.
5. Have students discuss areas on their hands that are sometimes missed during hand washing (i.e. areas that continued to glow under the light). These are usually the thumbs, between the fingers, and around the fingernails. Encourage students to pay extra attention to these areas whenever hand washing. Explain that, like germs, the powder can be washed off through proper hand washing.

Variations:

- Divide the students into two groups. Have one group wash with water only and the second group wash with soap and water. After examining their hands under the UV light, discuss the results.
- Put Glo Germ Powder onto the hands of one student and ask that student to shake hands with five classmates. Examine the hands of the students involved in the handshakes under the UV light. Discuss how the powder has been transferred from the hands of the original student to the hands of others. This is representative of how germs can be transmitted from one person to another through direct contact.
- Put Glo Germ Powder on an object (e.g. piece of paper, pen, pencil, toy) without the students knowing and then pass the object around the class. Then examine the student's hands under the UV light. This is representative of how germs can spread from an object to our hands.
- Put Glo Germ on a surface and examine under the UV light. Explain to the students that the powder represents germs on surfaces. Have the students wipe the surface and then examine under the UV light again to see how much powder was removed. Have students discuss areas on surfaces that are sometimes missed during hand washing (i.e. areas that continued to glow under the light).

How to differentiate instruction:

- For a group of older students this experiment can be the introduction to a science lesson surrounding biology. This can also be graded as a science mark regarding making hypothesis and studying something for a longer period of time.
- There are a number of variations for students that do or do not want to participate in handshaking.
- For older groups of students relate this activity back to microscopes and how germs can only be seen through a small microscopic lens.

Assessment Method:

1. The teacher can collect the hypothesis and give the students a yes or no mark for completion. The students should not be graded on whether their hypothesis is correct, rather if it is an educated guess. If the teacher would like to add a language component to the assignment they may.
2. The teacher can use a rating scale or notes to give students a mark based on their hypothesis and knowledge of cells/germs.

Grade 8 Science- Rating Scale Example:

- The student uses appropriate science terminology and vocabulary to explain their hypothesis.

  1 2 3 4 5

- The student demonstrates an understanding of germs in relation to microscopic elements. The student recognizes that germs cannot be seen without a microscope

  1 2 3 4 5

- The student can asses the role of a microscope and what it is most useful for.

  1 2 3 4 5

- The student recognizes that germs are cells that can have harmful effects on human life.

  1 2 3 4 5

LESSON PLAN #11: GROWING GERMS

(Adapted with permission from Ottawa Public Health)

Learning Objective:
Students will recall that microorganisms can be everywhere. Students will grow microorganisms by making cultures on agar plates. Students will recall that hand cleaning reduces the number of bacteria on hands.

Materials:

- Petri dishes, nutrient agar
- Cotton swabs
- toothpicks
- Masking tape and scotch tape
- A marker
- Hand washing facilities with liquid soap

Steps:

1. Have the students inoculate petri dishes with a different bacterial source for each plate. Suggestions are:
    - Hair – remove hair from the head of a student and place into the dish
    - Cough – hold a petri dish about 6 cm away from the mouth of a student and have him/her cough onto the plate.
    - Saliva – place a clean cotton swab into a mouth and moisten it with saliva, rub the swab over the agar
    - Nose – place a clean cotton swab into a nose and gently move it around, rub the swab over the agar.
    - Desk/Counter – have a student drag his/her fingers on a desk/counter to then trace an “S” on the agar.
    - Fingernail – scrape underneath with a toothpick and place contents onto the agar.
    - Place a washed fingertip in the agar in a petri dish.
    - Place an unwashed fingertip in the agar in a different petri dish.
2. Tape each dish closed by running scotch tape around the edge. Label each dish using masking tape and marker.
3. Place the dishes in a warm dark place for three to five days.
4. Check the dishes daily for growth; when the desired amount of bacterial growth is seen, refrigerate.
5. When bacterial growth can be seen, examine dishes and discuss how the bacteria became present.

6. Recall the different routes of transmission that occurred when inoculating the petri dishes.
7. Examine and compare all the cultures in the dishes. Explain how hand cleaning reduces the number of bacteria on hands.
8. Have students discuss the implications of this experiment for classroom hygiene and hand hygiene and what could they do differently regarding hand hygiene at school and at home.

How to differentiate instruction:

- For a group of older students this experiment can be the introduction to a science lesson surrounding biology. This can also be graded as a science mark regarding making hypothesis and studying something for a longer period of time.
- For classrooms that have microscopes available, the teachers can put these samples under a microscope to examine.

Assessment Method:

1. The teacher can collect the hypothesis and give the students a yes or no mark for completion. The students should not be graded on whether their hypothesis is correct, rather if it is an educated guess. If the teacher would like to add a language component to the assignment they may.
2. The teacher can use a rating scale or notes to give students a mark based on their learning skills.

Grade 8 Science- Rating Scale Example:

- The student uses appropriate science terminology and vocabulary to explain their hypothesis.
  1 2 3 4 5
- The student demonstrates an understanding of germs in relation to microscopic elements. The student recognizes that germs cannot be seen without a microscope
  1 2 3 4 5
- The student can follow correct safety procedures for handling a microscope.
  1 2 3 4 5
- The student can use a microscope correctly and safely to observe cells.
  1 2 3 4 5
- The student can prepare and mount a variety of slides to the microscope.
  1 2 3 4 5

LESSON PLAN #12: SKITTLES ACTIVITY

30 minutes – 1 hour.

Learning Objective:

The students will investigate how easily a few *infected* people can spread bacteria to multiple people-both directly and indirectly. The students will use skittles and smarties to represent germs and pathogens that we carry on our skin and in our body.

Materials:

- 1-3 bag of Skittles- *harmful germs* (depending on class size)
- 1-3 bag of Smarties (depending on class size)
- Dixie cups with separated skittles and Smarties
- Interesting Fact handout

Steps:

1. Before the students arrive to class the teacher will arrange the cups. The teacher will mark about ¼ of the class with *infected* cups- the teacher will write *infected* at the bottom of said cups. Each cup will be 1/3 of the way filled with Smarties- but the infected cups will have 4-5 Skittles added to them. In this activity the Skittles will act as harmful germs. The teacher will set one cup on each student's desk before they arrive.
2. The teacher will ask the students to NOT EAT THE CANDY- they may once the activity is completed.
3. The teacher will then hand out the Interesting Fact handout. The teacher will explain to the students that they are to find out three interesting facts about three different people in the classroom. When the students pair up, they are also to pour all of their candy into one of the cups, shake and then evenly separate their candy again.
4. The teacher must explain to the students to be careful, as we will not be eating any candy that has fallen on the floor.
5. Once all the students have found their interesting facts, the teacher will call the classes' attention once again. The teacher will then instruct the students to carefully pour the contents of their cups on their worksheets. The teacher will then ask the students to look and see if they have any Skittles in their cup- the students with skittles will be asked to stand up. The teacher will then ask the students to see if they had *infected* written on their cup, or if the Skittles were transferred when sharing interesting facts.
6. The teacher can then start a discussion on the importance of hand washing and how easily it is to spread germs- as the class just spread *germs* without even knowing!

How to differentiate instruction:

- If the teacher does not want the class to walk around with their candy, they may call two students at a time to the front of the class to swap
    - Example: Pick two students to come to the front of the class for a Rock, Paper, Scissors fight. The student that wins gets to have his or her cup filled, shake and then evenly separate again.
- If the teacher wishes they may change the interesting fact sheet to something more related to the curriculum they are covering.
- Example:
    - Ask three friends for one of the hand washing steps
    - Ask three friends to name one province in Canada
    - Ask three friends to answer the following math problem- 4x7=…etc.

Assessment Method:

1. The teacher should take notes reflecting the students' work habits and specifically chosen learning skills. The teacher can use a notepad, checklist or rating scale. The teacher should let the students know what he or she will be looking for during this activity.
2. If the teacher chooses to make an activity sheet that is more reflective of the curriculum currently being covered, they may collect the sheets to assess where the students are at.

Name: _____

INTERESTING FACTS WORK SHEET

Name	Interesting Fact

LESSON PLAN #13: HEALTHY HANDS HEALTHY YOU

(Adapted with permission from Ottawa Public Health)

Learning Objectives:

The students will recognize how germs are spread and how they relate to personal hygiene; will recognize the difference between germs, bacteria, and viruses; identify some of the illnesses and diseases that germs can cause. The students will also recognize that proper hand cleaning removes germs from hands and prevents the spread of illnesses and diseases.

- Germs are microorganisms that include bacteria and viruses.
- Some bacteria are beneficial and can help our bodies. Some examples of helpful bacteria can be found in yogurt and cheese. We also have helpful E. coli bacteria in our intestines that help our bodies digest food.
- Some examples of illnesses caused by bacteria are strep throat, Lyme Disease, food poisoning.
- Some examples of illnesses caused by viruses are flu, cold, chicken pox, hepatitis.
- Germs must get into your nose, mouth, eyes, cuts or scrapes to cause infection (e.g. by rubbing eyes, rubbing nose, eating, biting nails).
- Washing with soap and water removes germs from your hands.
- Cleaning your hands with hand sanitizers kills germs. However, it does not remove residue, such as food or dirt, from your hands. If your hands are visibly dirty or you have food residue (such as peanut butter) that can cause an allergic reaction you should use soap and water to clean your hands.
- Cleaning your hands properly can prevent the spread of many illnesses.
- Some other things you can do to help prevent the spread of illnesses include:
    - Coughing/sneezing into a tissue or into your sleeve
    - Staying home when you are sick
    - Keeping your immunizations up to date

Materials:

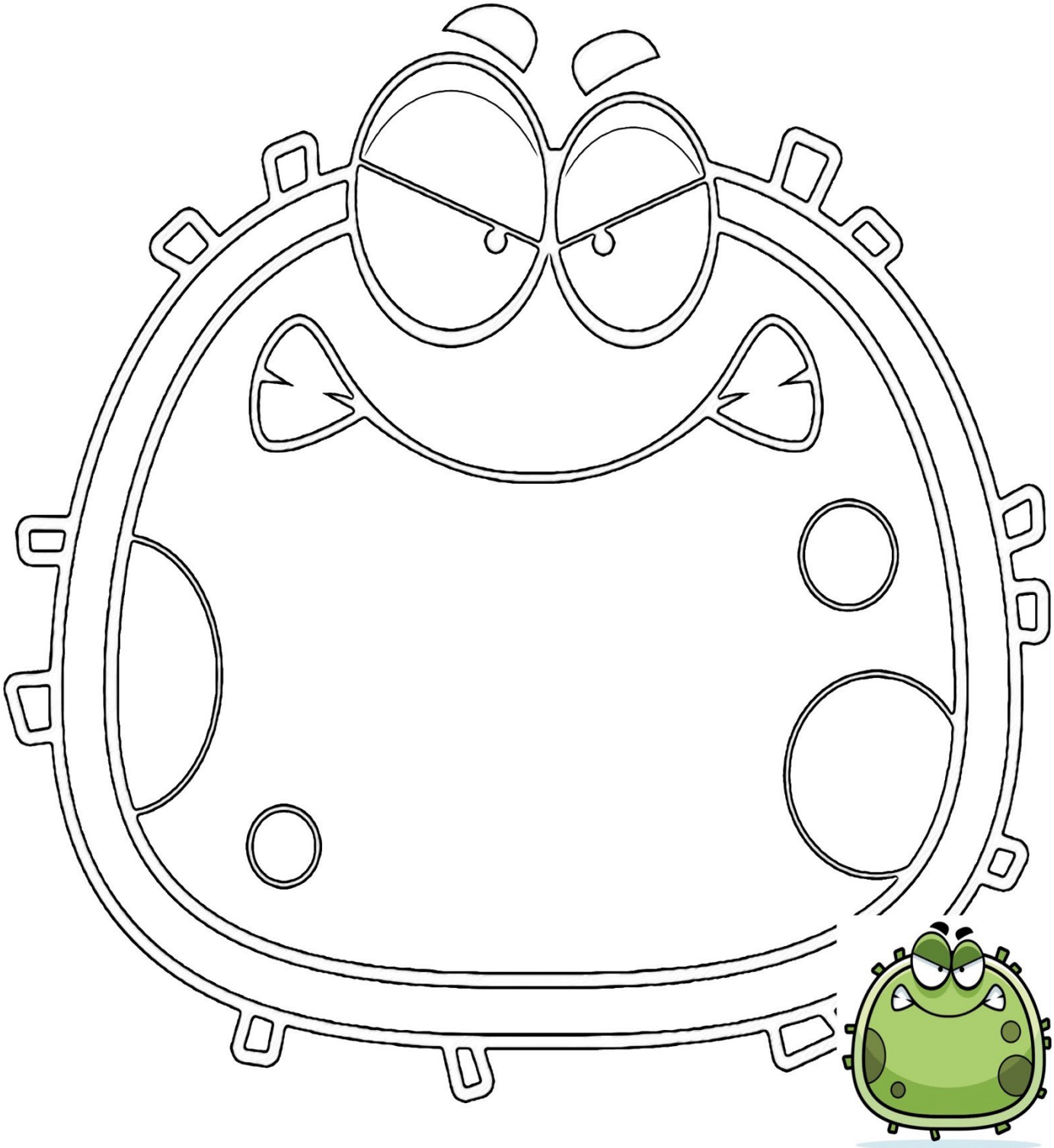
- Crayons or pencil crayons
- Colour Me Pages
- Healthy Hands Maze
- Connect the Dots activity sheet
- Healthy Hands Crossword
- Healthy Hands Word Scramble Puzzle
- Healthy Hands Secret Code
- Healthy Hands Word Search
- Healthy Hands Family Hand Washing Scoreboard (Take Home Activity)
- Teacher will have all answer sheets

Steps:

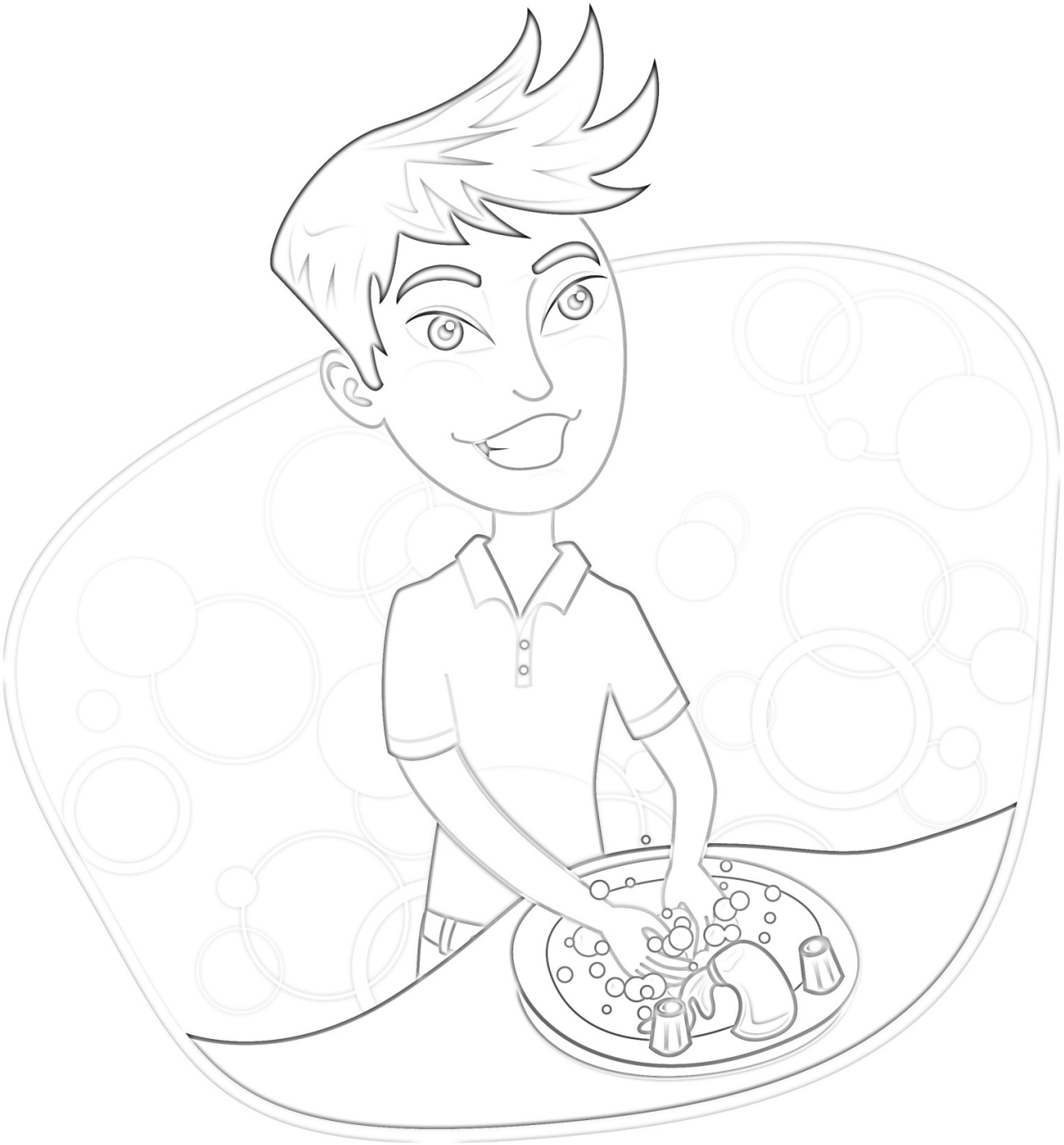
1. Teacher explains the above learning objectives, followed by a question and answer format with students.
2. Have the students complete the accompanying activities.

COLOUR ME

Name:_____



COLOUR ME Name:_____



COLOUR ME Name:_____

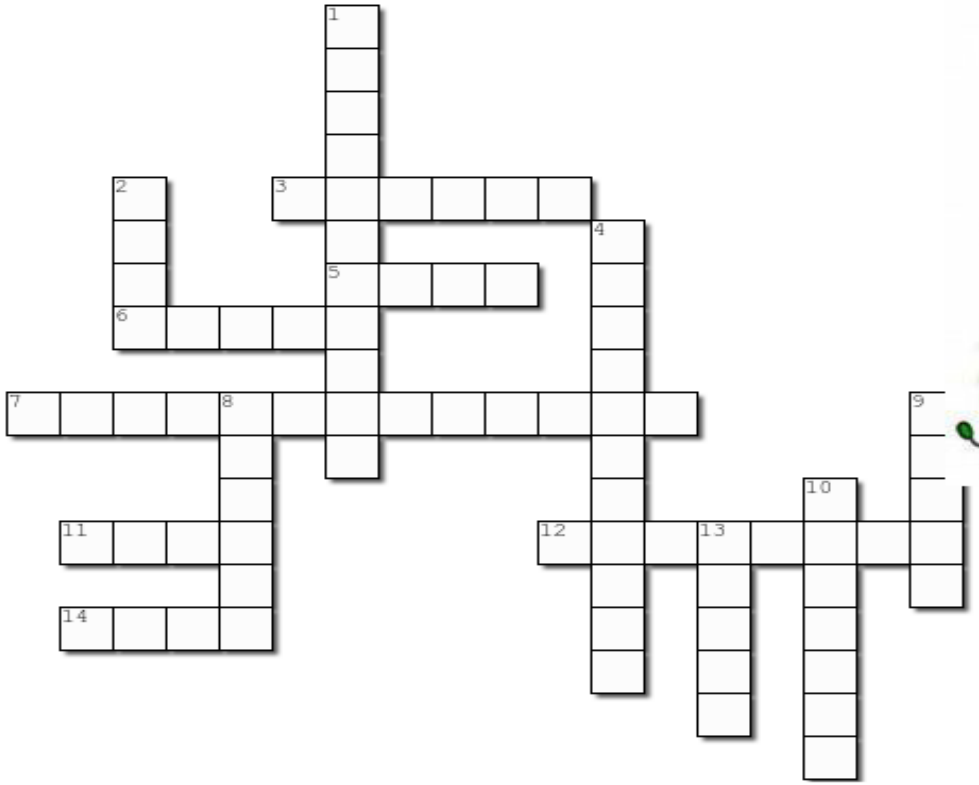
COLOUR ME

Name _____

Name:_____

Hand Washing

Complete the crossword below.



Created using the Crossword Maker on TheTeachersCorner.net

Across

3. I should wash my hands for this many seconds.
5. What do you use with water to wash your hands?
6. Cover this when you cough.
7. Use this after washing your hands.
11. Stay here if you are coughing and sneezing a lot.
12. Always wash your hands after going to this room.
14. There are this many steps to hand washing.

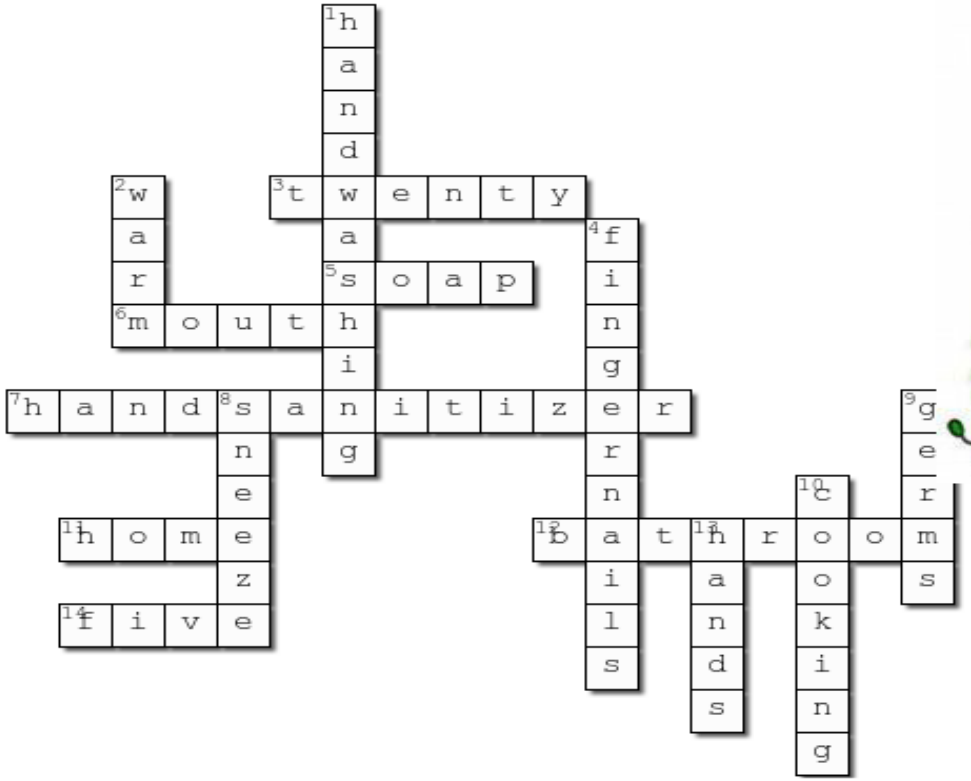
Down

1. The best way to prevent spreading germs.
2. What temperature is the best water for washing hands?
4. Remember to clean under here, germs like to hide there.
8. Achooo!!
9. You cannot see this but it can make you sick.
10. Always wash your hands before doing this activity.
13. Keep these clean to stay safe from germs.

Name:_____

Hand Washing

Complete the crossword below.



Created using the Crossword Maker on TheTeachersCorner.net

Across

3. I should wash my hands for this many seconds. (**twenty**)
5. What do you use with water to wash your hands? (**soap**)
6. Cover this when you cough. (**mouth**)
7. Use this after washing your hands. (**handsanitizer**)
11. Stay here if you are coughing and sneezing a lot. (**home**)
12. Always wash your hands after going to this room. (**bathroom**)
14. There are this many steps to hand washing. (**five**)

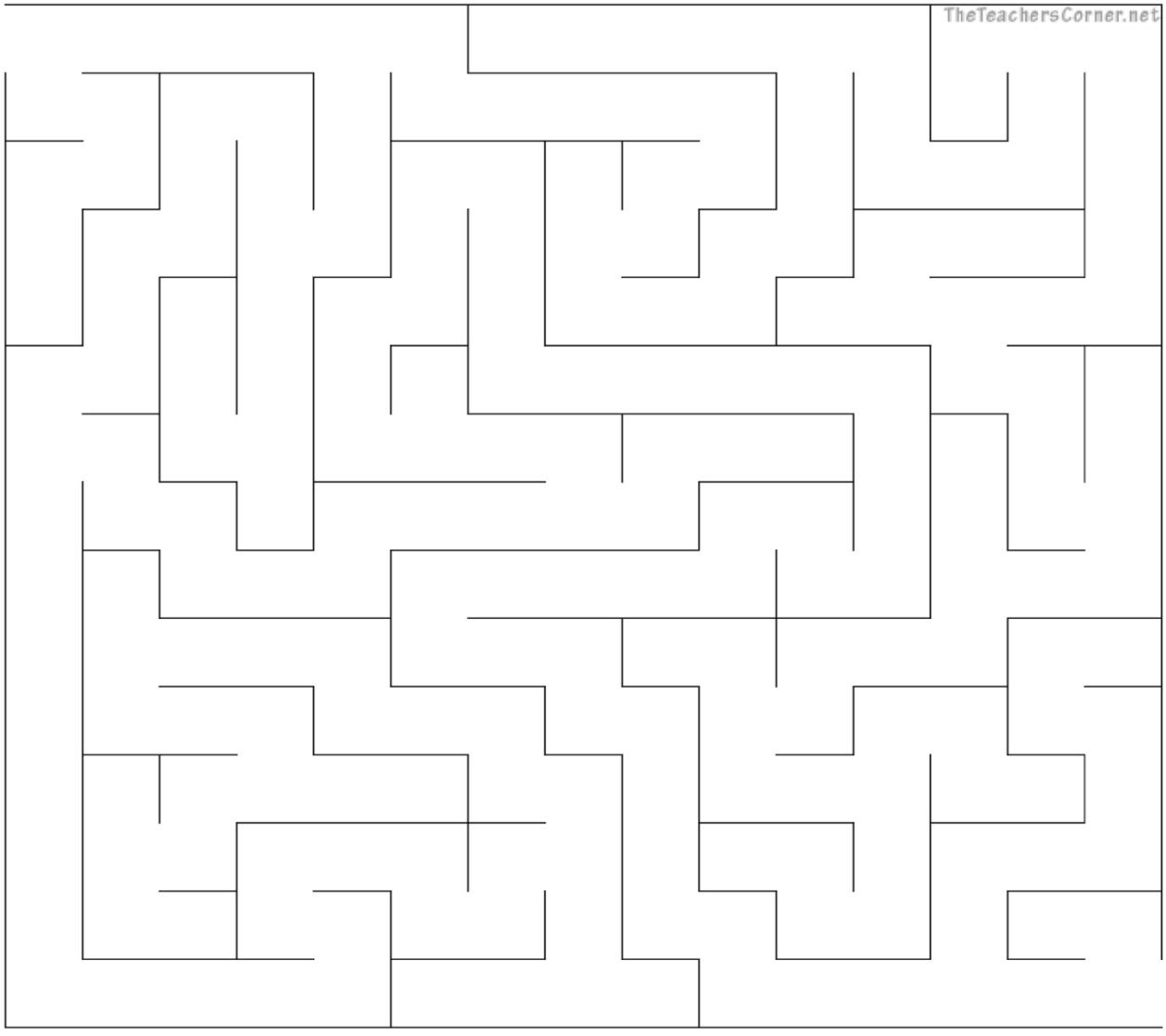
Down

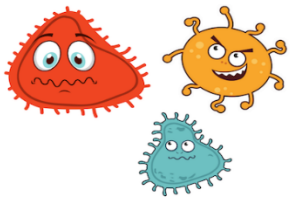
1. The best way to prevent spreading germs. (**handwashing**)
2. What temperature is the best water for washing hands? (**warm**)
4. Remember to clean under here, germs like to hide there. (**fingernails**)
8. Achooo!! (**sneeze**)
9. You cannot see this but it can make you sick. (**germs**)
10. Always wash your hands before doing this activity. (**cooking**)
13. Keep these clean to stay safe from germs. (**hands**)

Name:_____

Healthy Hands Maze

Help the soap find the germs to fight off colds and flu!



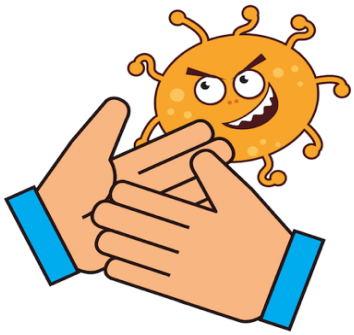


Name: _____

Healthy Hands Word Scrambler

Unscramble the following words.

1. coinlften	**4. Hdna rnaeStiiz**	**7. Tntywe secnSod**
2. etBcriaa	**5. aSop nda teraW**	**8. odCl nda ulF**
3. Vsuir	**6. nHasd**	**9. zneSee**
		10. ahsW urYo Hdsan



1. __ __ __ __ __ __ __ __ __ __
2. __ __ __ __ __ __ __ __
3. __ __ __ __ __
4. __ __ __ __ __ __ __ __ __ __ __ __ __ __ __
5. __ __ __ __ __ __ __ __ __ __ __ __ __
6. __ __ __ __ __
7. __ __ __ __ __ __ __ __ __ __ __ __ __
8. __ __ __ __ __ __ __ __ __
9. __ __ __ __ __ __
10. __ __ __ __ __ __ __ __

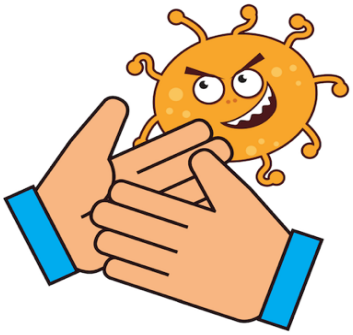
__ __ __ __ __

Name: _____

Healthy Hands Word Scrambler

Unscramble the following words.

1. coinIften	**4. Hdna rnaeStiiz**	**7. Tntywe secnSod**
2. etBcriaa	**5. aSop nda teraW**	**8. odCl nda ulF**
3. Vsuir	**6. nHasd**	**9. zneSee**
		10. ahsW urYo Hdsan



1. Infection
2. Bacteria
3. Virus
4. Hand Sanitizer
5. Soap and Water
6. Hands
7. Twenty Seconds
8. Cold and Flu
9. Sneeze
10. Wash your Hands

Name:_____

Healthy Hands Word Search

Find the following words in the puzzle

Germs	Soap	Sanitizer	Virus
Bacteria	Water	Hands	
Healthy	Infection	Lather	

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

Name:_____

Healthy Hands Word Search

Find the following words in the puzzle

Germs	Soap	Sanitizer	Virus
Bacteria	Water	Hands	
Healthy	Infection	Lather	

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

Name: _____

Healthy Hands Secret Code

You will find secret code symbols after the clues. Match up the symbol with the letter in the legend to reveal the secret word about healthy hands.

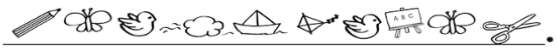
Code Symbol	Code Letter
	A
	B
	C
	D
	E
	F
	G
	H
	I
	J
	K
	L
	M
	N
	O
	P
	Q
	R
	S
	T
	U
	V
	W
	X
	Y
	Z

1. A type of germ that causes influenza is a  **.**

2. When washing your hands, use  **and warm water.**

3. Another way to clean your hands is to use  **.**

4. Make sure to wash your hands for at least  **seconds.**

5. Germs live to live under  **.**

6. Always wash your hands  **and after you eat.**

7. Always wash your hands after using the  **.**

8.  **and viruses are two types of germs that can make you sick.**

Name: _____

Healthy Hands Secret Code

You will find secret code symbols after the clues. Match up the symbol with the letter in the legend to reveal the secret word about healthy hands.

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

1. A type of germ that causes influenza is a  .

VIRUS

2. When washing your hands, use  and warm water.

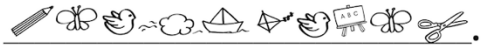
SOAP

3. Another way to clean your hands is to use  .

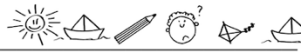
SANITIZER

4. Make sure to wash your hands for at least  seconds.

TWENTY

5. Germs live to live under  .

FINGERNAILS

6. Always wash your hands  and after you eat.

BEFORE

7. Always wash your hands after using the  .

BATHROOM

8.  and viruses are two types of germs that can make you sick.

BACTERIA

CONNECT THE DOTS Name: _____

HEALTHY HANDS FAMILY HAND WASHING SCOREBOARD (TAKE HOME ACTIVITY)

(Adapted with permission from Ottawa Public Health)

Students complete and keep score for one week. This is a chart that indicates the date, name of each family member and when that person washed his/her hands. Post this in the kitchen and encourage family members to complete it over a one-week period. (Classroom sharing of the results is at the teacher's discretion as this may be a sensitive issue).

Date	Name of Family Member	Hand Washing (place √ each time hands are washed)

MATERIALS SAFETY DATA SHEET – GLO-GERM POWDER

Glo-Germ Powder
Glo-Germ Company
PO Box 537
Moab, Utah 84532

Emergency & Information Telephone Numbers
1-800-842-6622

April 7, 2009

Introduction The Glo Germ Powder is 100% synthetic Organic Colorant A-594-5 (Blaze Orange or Invisible Blue are the two available colors. The following information applies to both colors). The Glo Germ Powder is not diluted with any inert material. Therefore, it is highly concentrated. The plastic particles are 5 microns and smaller. When the powder is 'puffed' or thrown into the air like dust, it is a lung irritant. The Glo Germ Company strongly recommends minimizing dust or powder in the air.

Section I – Product Information

Product code:	A-594-5 NFPA Ratings H F R
Product class:	Synthetic Organic Colorant 1 1 0
Product CAS:	Mixture

Section II – Hazardous Ingredients

No hazardous ingredients known at this time

Section III – Physical Data

Boiling range:	none Vapor density: non-volatile
Evap. rate:	non-volatile (Volatiles vol.% = 0, Wgt % = 0) Liquid density: heavier than water
Appearance:	colorless powder Weight per gallon: 11.41 pounds
V.O.C.:	see section IX

Section IV – Fire and Explosion Hazard Data

Flammability Class:	NA Flash Point: None F LEL: None UEL: None
Extinguishing media:	Based on the NFPA guide for class A fires, use dry chemical, water or another suitable extinguishing agent. For large fires, use water spray or fog, thoroughly drenching the burning area.
Special firefighting procedures:	Clear area of personnel. Approach upwind. Wear self-contained breathing apparatus.
Unusual fire and explosion hazards:	improper handling may lead to dust cloud formation, which, as with any organic compound, is an explosion hazard.

Section V – Health Effect Information

Eye contact:	Minimal irritation upon contact.
Skin contact:	Minimal irritation upon contact.
Inhalation:	Similar to nuisance dust. Avoid inhaling.

Section VI – Emergency and First Aid

Eye contact:	Flush with water for at least 15 minutes while holding eyelids open.
Skin contact:	Wash with soap and water. Implement good industrial hygiene.
Inhalation:	Remove victim to fresh air. Call a physician. Treat symptoms.

Ingestion: Do not induce vomiting. Give victim plenty of water. Call a physician.

Section VII – Personal Health Protection

Eye protection: Glasses or goggles recommended.
Skin protection: Required only for sensitive individuals.
Respiratory protection: In the case that levels above OSHA's PEL are present, use a NIOSH approved respirator.
Ventilation: General ventilation for comfort conditioning is usually enough to maintain the dust within the nuisance limit of 5 mg/cu.m.

Section VIII – Reactivity Data

Stability: Stable
Hazardous polymerization: Will not occur
Incompatibility: Avoid contact with strong oxidizers (i.e., chlorine, peroxides, chromate, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions, and the release of toxic fumes.
Conditions to avoid: Excessive dust in the vicinity of electrical or other spark generating equipment should be avoided, as should extremely warm temperatures.
Hazardous decomposition products: The fumes and smoke released contain oxides of carbon, sulfur, and nitrogen, which are highly toxic. Do not breath smoke or fumes. Wear suitable protective equipment.

Section IX – Spill or Leak Procedures

This product is not defined as a hazardous waste under EPA 40 CFR 261. Sweep up and dispose of substance as any dust or dirt should any be spilled or leak.

Section X – Regulatory Information

Federal: OSHA Hazard Communication Rule, 29 CFR 1910.1200: See Section II for hazardous ingredients as defined.
This product contains no ingredients covered by the Clean Water Act.
Product is not a regulated material under CERCLA/Superfund Amendments and Reauthorization Act (Title III) 40 CFR 117, 302.
Notification of spills is not required.
This product does not contain an ozone depleting substance (ODS) nor was it manufactured with them.
State: This product does not contain ingredients listed on the Michigan Critical Materials List.

Section XI – Transportation Information

Synthetic Organic Colorant 1 1 0, powder

MATERIALS SAFETY DATA SHEET – ULTRAVIOLET BLACK LIGHT

Ultraviolet Light (4-18 watts)
Glo-Germ Company
PO Box 189
Moab, Utah 84532

Emergency & Information Telephone Numbers
1-800-842-6622

February 28, 2009

Long-wave, **UV-A,** ultraviolet light, with wavelengths at 3500 to 3800 angstrom units, is totally harmless to skin and eyes. It causes no changes in the body and requires no protective precautions in normal use as recommended by the Glo-Germ Company.

Short-wave, **UV-B,** ultraviolet light, with wavelengths at 2537 angstrom units, does cause chemical changes in the body, such as the formation of Vitamin D. With prolonged exposure, reddening of the skin and inflammation of the eyes may occur. While these are uncomfortable effects, they are temporary and no permanent damage will result. Ordinary glass or plastic will completely filter out short-wave ultraviolet light.

UV-A long-wave light within the range outlined above is relatively safe. However, prolonged exposure of the black light to the eyes may cause eye irritation. Symptoms, which can include tearing of the eyes, a burning or painful sensation in the eyes, sensitivity to light, or a sensation like that experience when a foreign object is lodged in the eye, may not be present until several hours after exposure. To reduce likelihood of experiencing adverse symptoms, individuals should properly shield themselves and use the black lights only as directed. The above assumes a healthy eye and no corrective lenses. Therefore, the Glo-Germ Company recommends that the lamp never be held within **6 inches** of the eyes and do not look into the bulb at close range longer than three minutes. This lamp should be used under adult supervision.

Exposure to UV lights should be limited. Black lights should not be tampered with, nor should their shields or lenses be removed. The Glo-Germ Company uses black lights to detect “simulated” germs on hands and surfaces. Therefore, hands and surfaces only should be exposed to the light. Individuals should not look directly at the black light.

Please Note: Individuals sensitive to UV light, taking photosensitizing medications, or those who lack optic lenses or who may have other abnormal eye conditions may not be adequately protected against exposure to artificial UV light and should avoid it altogether.

Ultra Shortwave, **UV-C,** radiation has been known to cause blindness, ‘blind spots’ in the eyes, sun burning of the skin, and skin cancer. For these reasons, Glo-Germ Company does not use short-wave, UV-C, lights. These lamps are used to disinfect objects, to sterilize water or other liquids, in tanning booths, in special laboratory applications, and is the main ultraviolet wave length from the sun and welder torches. The wavelength is between 2000 and 2500 angstrom units.

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