

We're here for you!

Elementary Activities

to build healthy habits and support your

Math and Science Curriculum

while introducing students to

Careers in Healthcare

Go to

<http://www.healthscienceconsortium.org/>

**Links and Resources to down load your free
Elementary Education Toolkit based on**

the *health sciences*



health science guide for

INTEGRATED ACTIVITIES



All Pathways



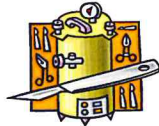
Biotechnology R & D



Diagnostic Services



Health Informatics



Support Services



Therapeutic Services

Looking for a way to improve student achievement?

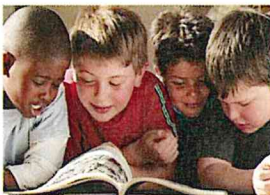
Welcome

Welcome to the NCHSE website for the **health science guide for INTEGRATED ACTIVITIES** classroom enhancements. The health science education INTEGRATED ACTIVITIES are offered as strategies to:

- Improve academic achievement through the integration of healthcare practices, procedures, and issues into the core program of study
- Increase interest in pursuing a career in healthcare by introducing students to the variety of career options and opportunities available
- Improve personal health status by building awareness of safe, appropriate, and rewarding behaviors
- Increase students ability to be collaborators, critical thinkers, and innovators as expected for the 21st century healthcare workforce

The Health Science Guide for Integrated Classroom Activities

In the complete resource there are 48 INTEGRATED ACTIVITIES for the elementary grades. Activities are arranged within healthcare pathways and by grade span as noted below:



Early Elementary (grades K-2)
(25 activities)



Elementary (grades 3-5)
(23 activities)

The INTEGRATED ACTIVITIES can also be accessed by primary curricular subject.



Other features include; identification by activity of a [National Healthcare Foundation Standards](#)-eleven standards common to all healthcare careers, and linkage of all activities to the common core standards for Math, English Language Arts, the Next Generation Framework Core Ideas, and National Health Education, Physical Education and Career Development. [National Healthcare Pathways and Sample Careers](#)-a listing of more than 200 sample careers organized by healthcare pathway are also available. By placing your cursor over either of the underlined items you will be linked to the resource.

For a complementary Toolkit that includes four complete activities with references and guidance for use go to the NCHSE online store www.healthscienceconsortium.org/store and while there check out the ordering information for the entire 48 activities and other resources.

NCHSE-Our Mission

The National Consortium for Health Science Education, founded in 1991, is an organization of state and local level healthcare education leaders, professional healthcare representatives, and a coalition of those that prepare and publish healthcare instructional materials. The mission of NCHSE is *to provide leadership and professional development for Health Science Education through collaboration among educators, healthcare industry, policy makers and professional organizations*. This site for distribution of the INTEGRATED ACTIVITIES offers several additional products intended to serve our mission. For more information about NCHSE and to explore other instructional materials and resources and professional development events check out our web site at <http://www.healthscienceconsortium.org>

As the healthcare industry continues to grow, currently employing more than 14.3 million and projected to add 3.2 million more jobs by 2018, more than any other industry sector, NCHSE is striving to increase the number of young people interested in pursuing healthcare as a future career. Introducing students to the broad spectrum of possibilities is an anticipated result of implementing the INTEGRATED ACTIVITIES into classroom practices.

All of the INTEGRATED ACTIVITIES are linked to at least one core subject and one National Healthcare Foundation Standard as well as a Career Development Standard. These linkages will help build student achievement and increase a depth of understanding of core content through applications and enhancements of each standard.

Counting and Measuring Body Parts



GRADE SPAN K-2

ACTIVITY TITLE: **COUNTING AND MEASURING BODY PARTS**

PURPOSE: The activity will enhance students counting and number grouping, measurement and recording skills through exploring human anatomy

INTEGRATION:

Primary Mathematics
Secondary Science

GETTING READY:

Review standards of measurement

ACTIVITY:

Students practice counting and grouping numbers using their own anatomy as models, they practice measuring their different bones and comparing results to determine the longest, shortest, and equal lengths

Part 1

- List anatomical body parts in number groups
 - Ones- head, nose, mouth, tongue, heart
 - Twos-eyes, ears, lips, arms, hands, feet
 - Fours-extremities (two arms and two legs)
 - Fives-fingers on each hand, toes on each foot
 - Tens-all fingers and all toes
- Record the groups in the appropriate cell on a writing board or on the [How Many Chart](#)
- Add each cell to determine how many anatomical parts lie within each number group
- Compare the totals and identify the most to the least of number groups

Part 2

- Listen to a presentation on average length of bones for different age groups, how measurements are calculated and why they are important
- View sample x-rays showing normal bones and fractured bones
- Measure the circumference of their partners head using a piece of string
- Measure the string length with a ruler or tape measure and record the results
- Repeat the process for the other partner
- Measure other bones; arm (elbow to fingertips), leg (knee to heel), foot (heel to toe), wrist and ankles (circumference of each)
- Measure both left and right, record results, and compare measurements (often they are different from one side to the other)
- Compare the results with the partner
- Record all measurements for each class member on the [Measurement Chart](#), identify the longest and shortest for each bone measured
- Determine the class average for each bone measured

**INSTRUCTOR
ROLE:**

Enlarge and copy the [How Many Chart](#) with rows numbered 1, 2, 4, 5, 10

Provide an anatomical chart to use for demonstrating examples

Arrange for a healthcare professional to discuss the different anatomical parts, how each is used and the importance of each part for activities of daily living (brushing teeth or hair, eating, swallowing, seeing, running, writing, etc)

Create a large graph or chart for recording the measurement results and determining the class averages

Demonstrate the different measurements

Arrange the students into teams

Provide the items needed for the exercise;

- 24" piece of string for each team
- A yard stick for each team
- [Measurement Chart](#) for each team

Arrange for a radiologist or radiologic technician to provide the x-ray display and lead the discussion

EDUCATION

PARTNER ROLE:

A health science instructor or student or life science teacher from the local high school, a career technical school, community college, or university can assist with the activity and can provide anatomical charts and x-rays

HEALTHCARE

PARTNER ROLE:

The healthcare professional can discuss the different anatomical parts, how each is used and the importance of each part for activities of daily living (brushing teeth or hair, eating, swallowing, seeing, running, writing, etc)

Also demonstrate how to accommodate the different activities if there is an injury to one of the anatomical parts being counted

The radiologist or radiologic technician can provide the x-rays for the display and discussion

They can also discuss the importance of taking accurate measurements and how they change as you grow

**RECOMMENDED
RESOURCES:**

24" piece of string for each team

A yard stick for each team

[Measurement Chart](#) for each team

A large copy of the [How Many Chart](#) for recording body parts count

STANDARDS:

Standards that have a natural alignment, are enhanced, reinforced or applied with this activity are listed below:

NHFS-(1.13) Academic Foundation

Analyze the basic structure and function of the human body

Math-(grade K.OA.1) Operations and Algebraic Thinking

Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (claps), acting out situations, verbal explanations, expressions or equations

Math-(grade 2.MD.1) Measurement and Data

Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tape

Math-(grade 2.MD.4) Measurement and Data

Measure to determine how much longer one object is than another, expressing the length difference in terms of a standards length unit

Science-(LS1.A) Core Ideas in the Life Sciences

Structure and Function

Career Development-(PS1.A2) Personal Social Development

Demonstrate use of your abilities, strengths, skills and talents

MEASUREMENT CHART

Directions: write the measurements for each item in inches on the chart below

TEAM MEMBER 1		TEAM MEMBER 2	
Name:		Name:	
HEAD		HEAD	
LEFT ARM		LEFT ARM	
RIGHT ARM		RIGHT ARM	
LEFT LEG		LEFT LEG	
RIGHT LEG		RIGHT LEG	
LEFT FOOT		LEFT FOOT	
RIGHT FOOT		RIGHT FOOT	
LEFT WRIST		LEFT WRIST	
RIGHT WRIST		RIGHT WRIST	
LEFT ANKLE		LEFT ANKLE	
RIGHT ANKLE		RIGHT ANKLE	

HOW MANY CHART

Number Group	Names of Body Parts	Total Number	Rate from Most (5) to Least (1)
Ones			
Twos			
Fours			
Fives			
Tens			

Contagious Disease Prevention



English
Language Arts



Science



Health
Education

GRADE SPAN K-2

ACTIVITY TITLE: **CONTAGIOUS DISEASE PREVENTION**

PURPOSE: The activity will help students understand the importance of proper handwashing and other measures used for health maintenance and disease prevention

INTEGRATION:

Primary

Health Education

Secondary

Science and English Language Arts

**GETTING
READY:**

Review common health habits to reduce the spread of disease

ACTIVITY:

Students learn how germs are transmitted and several common health habits to help prevent the spread of contagious disease

- Review the [Chain of Infection](#) handout and watch a short animation on spread of disease
- Practice sneezing or coughing into their elbow to contain the germs
- Refrain from sharing food or drink when germs can be spread
- Practice proper handwashing:
 - Cover hands with an indicator that can only be seen under an ultraviolet light (the indicator represents germs)
 - Allow the indicator to dry
 - Place hands under the ultraviolet light to see the presence of germs only visible under the light
 - Wash and dry hands
 - Place hands again under the ultraviolet light to see how many germs still remain
 - Continue washing hands using an antibacterial soap until the entire indicator/germs are removed
- Use the ultraviolet light to determine the presence of indicator on the faucet, sink, soap, and towel dispensers
- Discuss what will happen if the indicator is not removed from these items
- Discuss what action can break the chain of infection

Note: an additional activity can be to cover the teachers hand with the indicator at the beginning of class, shake hands with the students as they enter the classroom. Checking with the ultraviolet light at the end of class see how the indicator has spread across the class on clothing, desks, and school items

INSTRUCTOR

ROLE:

Order the indicator and an ultraviolet light for the activity

Provide copies of the [Chain of Infection](#) handout for each student

Arrange for a healthcare professional to demonstrate proper handwashing and techniques to limit spread of disease when coughing or sneezing

EDUCATION

PARTNER ROLE: A health science teacher or students from the local high school, technical school, community college or university can assist with the activity and can provide the indicator and ultraviolet light

The activity can also take place at a health science program lab with assistance from the health science students

HEALTHCARE

PARTNER ROLE: A healthcare professional can demonstrate proper handwashing and techniques to limit spread of disease when coughing or sneezing

The activity can also be arranged as a field trip to a hospital or clinic lab

RECOMMENDED

RESOURCES: [Chain of Infection](#) handout

[Handwashing Graphic](#)

<http://images.search.yahoo.com/images/view>

Glo Germ Indicator Kit

<http://www.glogerm.com>

ultraviolet light

STANDARDS:

Standards that have a natural alignment, are enhanced, reinforced or applied with this activity are listed below:

NHFS-(9.11) Health Maintenance Practices

Apply behaviors that promote health and wellness

Health Education-(grade k-4 3.1) Practice Health-Enhancing Behaviors and

Reduce Health Risks

Identify responsible health behaviors

Science-(LS1.B) Core Ideas in the Life Sciences

Growth and Development of Organisms

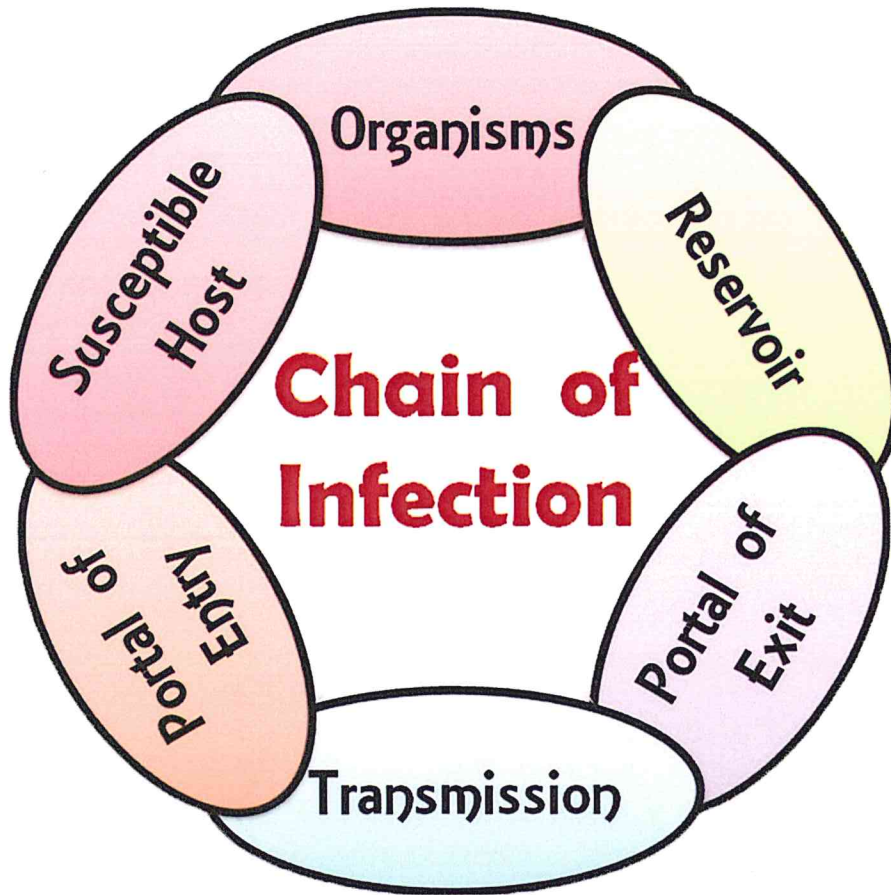
ELA-(SLS grade 2.4) Speaking and Listening Standards K-5

Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences

Career Development-(PS3.K2) Personal Social Development

Identify good health habits (e.g., good nutrition and constructive ways to handle stress)

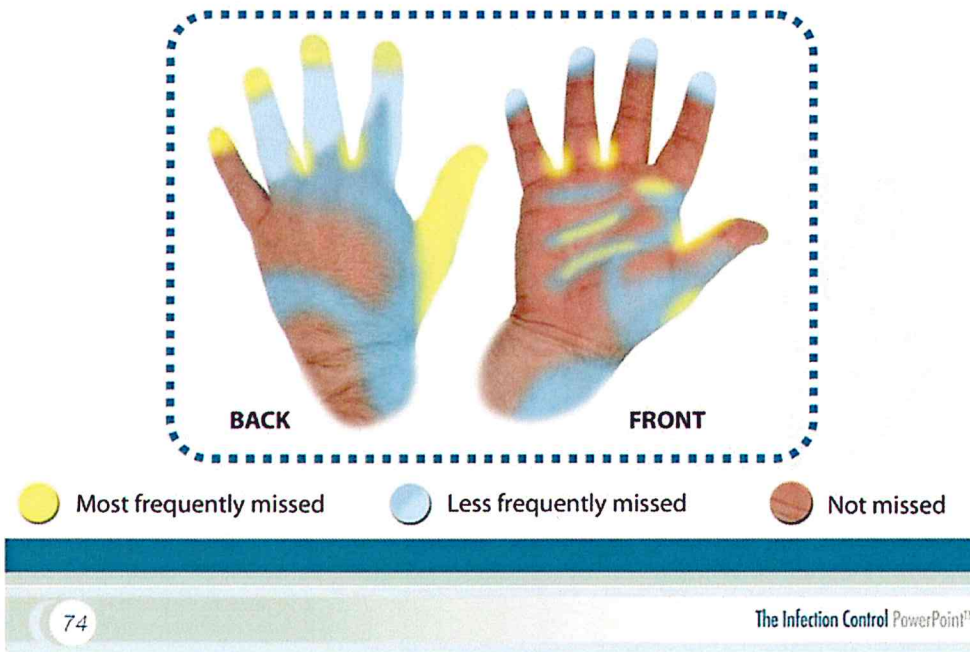
Chain of Infection



Retrieved from <http://images.search.yahoo.com/images/view> September 2012

Handwashing Graphic

Areas most often missed



Retrieved from <http://images.search.yahoo.com/images/view> September 2012



GRADE SPAN 3-5

ACTIVITY TITLE: **SYSTEMS AT WORK**

PURPOSE: The activity will provide students with an introduction to the human body systems and how they work together

INTEGRATION:

Primary

Science

Secondary

Health Education and English Language Arts

**GETTING
READY:**

Review [The Human Body Fast Facts](#) handout and a poster or electronic display of the different body systems to be reviewed

ACTIVITY:

Students, in seven groups, will determine the purposes of the different body systems and how each contributes to the functions of the body as a whole

- Participate in a discussion with a healthcare professional on what determines a body system
- Complete research on one of seven body systems assigned to your group
 - Muscular
 - Skeletal
 - Immune
 - Nervous
 - Circulatory
 - Respiratory
 - Digestive
- Locate and record information on
 - Function and purpose
 - Location in the body
 - Components
 - Shape(s)
 - Connections to other systems
 - Two common illnesses or diseases that can occur in the system
- Prepare an exhibit on your system findings to share with the rest of the class

INSTRUCTOR

ROLE:

Arrange for the healthcare professional; nurse or physician, to provide the discussion and assist with resources for the research and exhibit

Arrange the students into seven groups

Arrange for computer research time for each group

Provide materials for the exhibit development and time for the presentations

Provide copies of [The Human Body Fast Facts](#) handout

EDUCATION

PARTNER ROLE: A health science teacher or students from the high school or college can provide the orientation posters or electronic display and assist with the Getting Ready preparation

They can also assist the students with their research and exhibit

HEALTHCARE

PARTNER ROLE: A healthcare professional, nurse or physician, can provide the discussion and assist with resources for the research and exhibit

They can also discuss the types of diseases or illnesses associated with the various systems, how they are diagnosed and treated, and how they can be prevented

RECOMMENDED

RESOURCES: [The Human Body Fast Facts](#) handout

Really good site, lots of information, video and graphic clips
http://www.kidinfo.com/health/human_body.html

The site provides links to many other sources for students to research
<http://kidskonnnect.com>

STANDARDS:

Standards that have a natural alignment, are enhanced, reinforced or applied with this activity are listed below:

NHFS-(1.11) Academic Foundations

Classify the basic structural and functional organization of the human body (tissue, organ, and system)

Science-(LS1.A) Core Ideas in the Life Sciences
Structure and Function

Health Education-(grade 5-8.3) Health Promotion and Disease Prevention
Explain how health is influenced by the interaction of body systems

ELA-(SLS grade 4.4) Speaking and Listening Standards K-5

Report on a topic or text, tell a story or recount and experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understanding pace

ELA-(SLS grade 5.5) Speaking and Listening Standards K-5

Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes

Career Development-(PS3.A2) Personal Social Development

Demonstrate how you have adopted good health habits

The Human Body Fast Facts

1. The human body is made up of a head, neck, torso, two arms and two legs. The average height of an adult human is about 5 to 6 feet tall.
2. The adult body is made up of: 100 trillion cells, 206 bones, 600 muscles, and 22 internal organs.
3. There are many systems in the human body:
 - Circulatory System (heart, blood, vessels)
 - Respiratory System (nose, trachea, lungs)
 - Immune System (many types of protein, cells, organs, tissues)
 - Skeletal System (bones)
 - Excretory System (lungs, large intestine, kidneys)
 - Urinary System (bladder, kidneys)
 - Muscular System (muscles)
 - Endocrine System (glands)
 - Digestive System (mouth, esophagus, stomach, intestines)
 - Nervous System (brain, spinal cord, nerves)
 - Reproductive System (male and female reproductive organs)
4. Every square inch of the human body has about 19 million skin cells.
5. Every hour about 1 billion cells in the human body must be replaced.
6. The average human head has about 100,000 hairs.
7. The circulatory system of arteries, veins, and capillaries is about 60,000 miles long.
8. The heart beats more than 2.5 billion times in an average lifetime.
9. There are about 9,000 taste buds on the surface of the tongue, in the throat, and on the roof of the mouth.
10. The strongest muscle in the body is the tongue.
11. The human heart creates enough pressure when it pumps out to the body to squirt blood 30 feet.
12. You blink over 10,000,000 times a year.
13. The human brain weighs about 3 pounds.
14. It takes about 20 seconds for a red blood cell to circle the whole body.
15. Only 10% of the population is left handed.
16. One fourth of the bones in your body are in your feet.
17. Children tend to grow faster in the spring.
18. More men are color-blind than women.
19. More people have brown eyes than any other color.

Retrieved from <http://www.kidskonnnect.com>

Effect of Smoking on Lung Capacity



Mathematics



Science



Health
Education

GRADE SPAN 3-5

ACTIVITY TITLE: **EFFECT OF SMOKING ON LUNG CAPACITY**

PURPOSE: The activity will help students realize the effects that smoking can have on lung capacity and related disease

INTEGRATION:

Primary

Health Education

Secondary

Science and Mathematics

**GETTING
READY:**

Review the basic respiratory structure and function

ACTIVITY:

Students in teams of two using assigned identification numbers simulate the long-term effects of smoking and the related diseases and how it impacts quality of life

Part 1

- Stretch a medium sized balloon four or five times
- Take a deep breath and blow as much air as possible into the balloon with one breath to determine individual lung capacity
- Measure the circumference of each balloon for comparison
- Record the results on the [Capacity Chart](#) total the measurements and divide by number of students participating to determine average

Part 2

- Standing in place pinch their nose, breath through a small straw, and see how long they can breath
- Sit down when they can no longer get a breath
- Repeat the exercise walking around the room breathing through the straw until they can no longer get a breath
- Record the number of minutes for each student on the [Capacity Chart](#) add the minutes for each and divide by the number of participants to determine the average
- Discuss how each felt and how losing lung capacity can restrict you
- Recognize that the result is similar to that of a long-term smoker that has sustained lung damage
- Make a list for the class of some things they may not be able to do if they had a restricted lung capacity (e.g., sports, dancing, singing, speech debate, music)

Important Note: if any student has asthma or other breathing restrictions they should be excused from the exercise and can instead share how the restriction affects their lives

INSTRUCTOR

ROLE:

Organize students into teams of two, assign each student an identification number for anonymity

Arrange for a respiratory therapist, athletic trainer or representative from the local chapter of the American Lung Association to participate in the exercise. They can discuss how the lungs are damaged, and perhaps bring in x-rays or photos to show the difference in healthy lungs and damaged lungs

Provide a balloon and straw for each students use (small circumference straws give the most dramatic result)

A stop watch, wall clock or watch with a sweep second hand to time the practice

Measuring tape or string and ruler for the balloon

EDUCATION

PARTNER ROLE: Anatomy and physiology or chemistry teacher can provide information on the respiratory system and the chemical content in cigarettes. Students from a health science program at the high school, community college or technical school can assist with the activity

HEALTHCARE

PARTNER ROLE: A respiratory therapist, athletic trainer or representative from the local chapter of the American Lung Association can participate in the exercise to discuss how the lungs are damaged, and perhaps bring in x-rays or photos to show the difference in healthy lungs and damaged lungs

RECOMMENDED RESOURCES:

American Lung Association
<http://www.lungusa.org>

American Association for Respiratory Care
<http://www.aarc.org/>

Tutorial on respiratory function using interactive animation
<http://www.GetBodySmart.com>

STANDARDS: Standards that have a natural alignment, are enhanced, reinforced or applied with this activity are listed below:

NHFS-(1.21) Academic Foundation
Describe common diseases and disorders of each body system (prevention, pathology, diagnosis and treatment)

Health Education-(grade 5-8 1.1) Health Promotion and Disease Prevention
Explain the relationship between positive health behaviors and the prevention of injury, illness, disease and premature death

Science-(LS1.B) Core Ideas in the Life Sciences
Growth and Development of Organisms

Math-(4.MD.1) Measurement and Data
Know relative sizes of measurement units within one system of units. . .Within a single system of measurement express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Career Development-(PS3.R2) Personal Social Development

Assess the impact of your health habits on your career development

Capacity Chart

Student Identification #	Balloon Circumference		Straw Breathing Endurance	
	Inches	Feet	Seconds	Minutes
Totals				
Average				