

Human Anatomy & Physiology  
Main Lesson  
for Eighth Grade

Notes & Collected Resource List

## Main Lesson Block Schedule & Overview

Having done this with my own daughter, I **strongly recommend** the three-day cycle and breaking this main lesson into two blocks.

### *Week One*

Monday - story #1 - The Great River

Wednesday - story #2 - The Circulatory System

### *Week Two*

Monday - story #3 - The Nervous System

Wednesday - story #4 - The Eye

### *Week Three*

Monday - story #5 - The Vestibular System

Wednesday - story #6 - The Ear

### *Week Four*

Monday - story #7 - The Endocrine System

Wednesday - story #8 - The Respiratory System / Photosynthesis

### *Week Five*

Monday - story #9 - The Digestive System / The Teeth

Wednesday - story #10 - The Urinary System

### *Week Six*

Monday - story #11 - The Skeletal System

Wednesday - story #12 - The Muscular System

### *Week Seven*

Monday - story #13 - The Integumentary System

Wednesday - story #14 - The Cell

### *Week Eight*

Monday - story #15 - The Immune System / The Lymphatic System

Wednesday - story #16 - The Reproductive System / Genetics

## Booklist:

### Nomenclature for the 14 Systems of the Human Body Used for Study and to Learn and Self-Check Vocabulary Terms

“Nomenclature” came from Maria Montessori’s belief that children should be taught the correct name for all things, even very early on. She saw this as a sign of respect for the child.

Three part cards are used in Montessori schools to teach nomenclature, and they are extremely helpful because students can review terminology whenever they need to and self-check using the “control cards” or “control charts.” Given the large amount of vocabulary taught in a study of the human body, I felt these materials were worth buying. They present the body systems in a consistent manner. They are just *one tool* to go along with hearing stories, taking part in hands-on dissections, conducting experiments, making observations, drawing detailed diagrams, modeling and painting parts of the human body, creating analogies, and taking field trips.

Montessori materials focus on allowing your child to work independently. Here are instructions for the use of three part cards: <http://www.blog.montessoriforeveryone.com/using-3-part-cards-montessori-classroom.html>

I used Montessori materials which are made by ETC Montessori. The two are sold in a combined package ELCPK-4043 for \$100.

“The Great River” <http://www.etcmontessorionline.com/montessori-curriculum/e2/science/the-great-river>

“Human Physiology” <http://www.etcmontessorionline.com/montessori-curriculum/e2/science/human-physiology-complete-set>

Ages 9-12. This set of materials covers the main systems of the human body and includes:

- three part cards
- control charts
- booklets
- experiments
- research cards
- teachers notes
- lab background
- scope and sequence
- objectives and standards.

This material includes the following systems:

- Circulatory system
- Digestive system
- Endocrine system
- Integumentary system
- Lymphatic system
- Immune system
- Muscular system
- Nervous system
- Reproductive system
- Respiratory system
- Skeletal system
- Urinary system
- Vestibular system

**Booklist:**

**Used for Background Information & Hands-On Science Experiments**

The Private Eye : "5X" Looking/Thinking by Analogy - A Guide to Developing the Interdisciplinary Mind  
by Kerry Ruef

Wall Chart of Human Anatomy : 30 Full-Body Images and Detailed System Charts : 12 Fold-Out Panels  
by Thomas McCracken

Wolf-Heidegger: The Color Atlas of Human Anatomy  
edited by Dr. Kopf-Maier

Brown Paper School book: Blood and Guts  
by Linda Allison (we used this as our primary text)

Easy Genius Science Projects with the Human Body: Great Experiments and Ideas  
by Robert Gardner

THE HUMAN BODY: 25 FANTASTIC PROJECTS Illuminate How the Body Works (Build It Yourself)  
by Kathleen Reilly

The Book of Think: Or How to Solve a Problem Twice Your Size  
by Marilyn Burns

Zombie Makers: True Stories of Nature's Undead  
by Rebecca Johnson

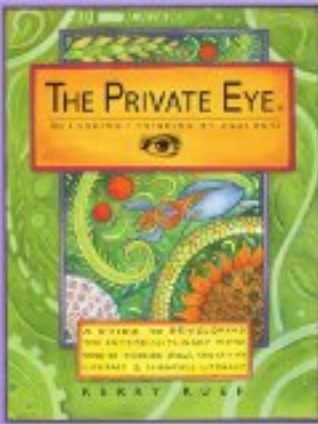
Gregor Mendel: The Friar Who Grew Peas  
by Cheryl Bardoe (she also has a free educator guide on her website, available for download as a PDF)  
[http://www.cherylbardoe.com/cherylbardoe/Books\\_files/Gregor%20Mendel%20Educator%20guide%20.pdf](http://www.cherylbardoe.com/cherylbardoe/Books_files/Gregor%20Mendel%20Educator%20guide%20.pdf)

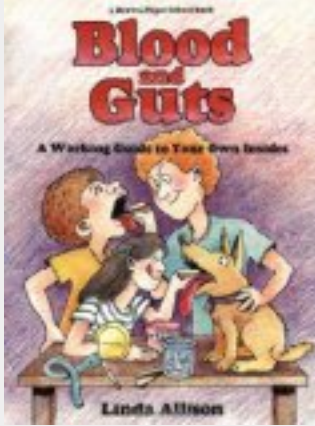
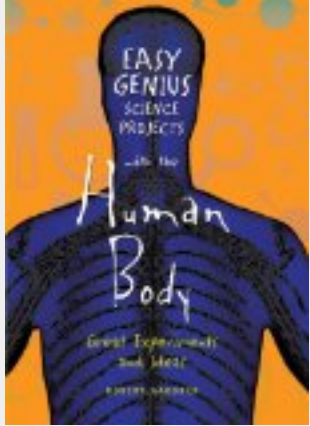
Learning About the World Through Modeling: Sculptural Ideas for School and Home  
by Arthur Auer (for advanced work, more challenging clay projects are found in his wife's book, Creative Pathways)

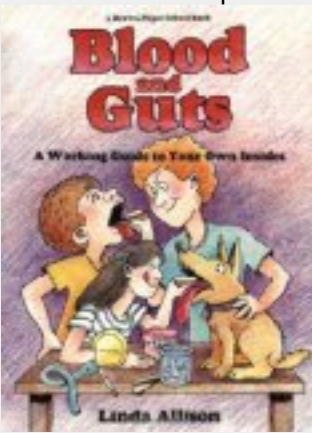
Painting and Drawing in Waldorf Schools: Classes 1-8  
by Thomas Wildgruber

Sample Week - Lesson Plans

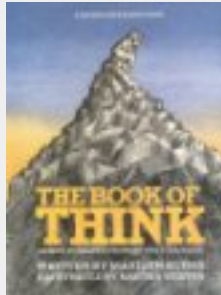

Week One - Monday			story #1
<b>Main Lesson Book</b>	pass out new main lesson books - we use Green for Science topics	we do not decorate the front cover until the final day of the block	we leave the first page, which we use as the table of contents, blank until the final day of the block
<b>Chalkboard Drawing</b>	“The Great River” Montessori Sixth Great Lesson	<a href="http://elementaryobservations.blogspot.com/2014/09/the-great-river.html">http:// elementaryobservations.blogspot.com/2014/09/the-great-river.html</a>  includes sample chalkboard drawing and free download (PDF) of mute chart and control chart	I added buildings for The Lymphatic System (Dept. of Water Control) and The Integumentary System (The Maintenance Dept.).  I included The Reproductive System (The Space Program), drawn as a small rocket ship down in the lower right corner.  I also added a balance beam to indicate The Vestibular System to the senses under the President’s Cabinet.
<b>Lesson: The Great River</b>	“The Great River” Montessori Sixth Great Lesson	I told the story and created the chalkboard drawing as I went along	
<b>Main Lesson Book</b>	add the illustration (and captions) for The Great River to MLB		

<b>Lesson</b>	review The Great River		
<b>Exploration</b>	<p>choose exercises from The Private Eye to further understand and practice analogies</p> <p>continue exercises from this book throughout the school year</p> <p>(requires a jeweler's loupe)</p>  <p>The Private Eye : "5X" Looking/ Thinking by Analogy - A Guide to Developing the Interdisciplinary Mind</p>	<p>Analogies within "The Nation of the Great River"</p> <p>Nation: Human Body</p> <p>Citizens: The Cells</p> <p>Great River: The Blood</p> <p>The President: The Brain</p> <p>The President s Cabinet and Communication Department: Nervous System</p> <p>The Department of Air Quality: The Respiratory System</p> <p>The Department of Nutrition: The Digestive System</p> <p>The Department of Purification: The Kidneys and Excretory System</p>	<p>The Walls and Towers of the Nation: The Skeletal System</p> <p>The Maintenance Department: The Integumentary System</p> <p>The Department of Defense: The Immune System</p> <p>The Department of Transportation: The Circulatory System</p> <p>The Department of Water Control: The Lymphatic system</p> <p>The Space Program: The Reproductive System</p>
<b>Main Lesson Book</b>	write a rough draft of story #1		

Week One - Wednesday			story #2
<b>Main Lesson Book</b>	revise/edit/add story #1 to MLB		
<b>Chalkboard Drawing</b>	the heart <a href="https://www.pinterest.com/pin/482025966346193014/">https://www.pinterest.com/pin/482025966346193014/</a>	or the circulatory system <a href="https://www.pinterest.com/pin/482025966346192979/">https://www.pinterest.com/pin/482025966346192979/</a>	Pinterest is a good source for examples of chalkboard drawings as well as student MLB pages!
<b>Lesson: The Circulatory System</b>	information and experiments in  Blood & Guts: A Working Guide to Your Own Insides pp.50 - 58	Tennis Ball Squeeze, p.50 Stethoscope, p.51 Under Your Tongue, p.54 Matchstick Pulse Meter, p.55 Stress Test, p.57  learn how to take blood pressure using a blood pressure cuff and stethoscope	information and experiments in  Easy Genius Science Projects with the Human Body: Great Experiments and Ideas  Activity 1.3 "Returning to the Heart" pp.16-17
<b>Main Lesson Book</b>	add the illustration (and captions) for The Circulatory System to MLB		

Week One - Thursday			story #2
<b>Lesson</b>	review The Circulatory System	create analogies for the FORM and FUNCTION of the different parts of the system (as listed on the Montessori nomenclature cards)	<p>"what else does it look like?" FORM</p> <p>"what else does it remind me of?" FUNCTION</p>
<b>Exploration</b>	<p>information and experiments in</p>  <p>Blood &amp; Guts: A Working Guide to Your Own Insides</p> <p>Heart Dissection, p.53</p>	<p>we did this with a cow heart and a pig heart, both ordered from the local butcher</p> <p>a 4.9 lb cow heart cost \$11.08</p> <p>we were given a scalpel and three blades - from a nursing student</p> <p>you can also purchase a scalpel at a sports, outdoor, or hunting store</p> <p>it was helpful to have Natalie's main lesson book page showing the diagram of the heart available — we clipped it up to the refrigerator while dissecting</p>	<p>after dissecting the cow heart we used it in a delicious recipe:</p> <p><a href="http://paleoincomparison.blogspot.com/2013/09/crock-pot-beef-heart-with-cauli-mash_27.html">http://paleoincomparison.blogspot.com/2013/09/crock-pot-beef-heart-with-cauli-mash_27.html</a></p>
<b>Main Lesson Book</b>	<p>write a rough draft of story #2</p> <p>include your analogies</p>	<p>we tended to make tables of the analogies. we also left room on the page for interesting facts</p>	<p>we created analogies for every part of every system as we went through the human body</p>



<p><b>Main Lesson Book</b></p>	<p>revise/edit/add story #2 to MLB</p>		
<p><b>Exploration</b></p>	<p>This day has more free time in it than the others — use it</p> <p>to <i>finish up extras</i> (conduct some of the experiments from earlier in the week which you ran out of time for),</p> <p>to <i>do another dissection</i> (do the pig heart dissection and compare its size and structure to the cow heart),</p> <p>to <i>get caught up on work</i> (it can take a lot of time to draw these complicated illustrations and diagrams in the MLB),</p> <p>or to <i>take a related field trip</i>.</p>	<p>This could also be the day to enjoy interesting kid-friendly books which support the topics. You could use them as an extension to a topic covered this week, or to pique interest in a topic which will be introduced next week.</p>	<p>Here are two great books I recommend for The Nervous System (which is introduced on Monday Week 2):</p>  <p><u>The Book of Think: Or How to Solve a Problem Twice Your Size</u></p>  <p><u>Zombie Makers: True Stories of Nature's Undead</u></p>

## Planning Pages - Experiments & Supplies

Circulatory System				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Tennis Ball Squeeze</i> , p.50	tennis ball			
Blood and Guts <i>Stethoscope</i> , p.51	rubber tubing funnel or old glue bottle			
Blood and Guts <i>Heart Dissection</i> , p.53	scalpel and blade lamb, pig, or cow heart surface for dissecting on			
Blood and Guts <i>Under Your Tongue</i> , p.54	mirror strong light magnifying glass			
Blood and Guts <i>Matchstick Pulse Meter</i> , p.55	thumbtack wooden matchstick			
Blood and Guts <i>Stress Test</i> , p.57	graph paper clipboard and a pencil			
Easy Genius Science Projects Activity 1.3 <i>Returning to the Heart</i>	none			

## Planning Pages - Experiments & Supplies

Nervous System				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Brain Dissection</i> , p.115	scalpel and blade cow brain surface for dissecting on			
Blood and Guts <i>Knee Jerker</i> , p.116	none			
Blood and Guts <i>Limb Levitation</i> , p.117	doorway or a partner			
Blood and Guts <i>Dollar Drop</i> , p.117	dollar bill or paper and scissors			
Blood and Guts <i>Muscle Learning</i> , p.119	small stone ruler partner			
Blood and Guts <i>Force of Habit</i> , p.119	piece of notebook paper pencil stopwatch			
Blood and Guts <i>Training Time</i> , p.119	piece of notebook paper pencil partner			
Blood and Guts <i>Dominance Tests</i> , p.121	kickball partner			
Human Body 25 Fantastic Projects - Make Your Own "Seeing is Believing" <i>Experiment</i> , p.82	corn, rice, piece of chicken food coloring plate partner			
Human Body 25 Fantastic Projects - Make Your Own <i>Sniffer Tester</i> , p.97	cotton ball vanilla and other extracts blindfold partner			

## Planning Pages - Experiments & Supplies

The Eye page 1 of 3				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Keep Your Eye on the Ball</i> , p.88	ball partner			
Blood and Guts <i>Seeing is Believing</i> , p.88	none			
Blood and Guts <i>Hole in Your Hand</i> , p.89	sheet of paper			
Blood and Guts <i>Stereo Vision</i> , p.89	8" x 5" piece of cardboard scissors or tack punch table top balls of clay ruler long piece of string two small objects paper and pencil			
Blood and Guts <i>Eye Dissection</i> , p.92	scalpel and blade sheep or cow eyeball surface for dissecting on			
Blood and Guts <i>Shifty-Eyed</i> , p.94	none			
Blood and Guts <i>Sight at Night</i> , p.94	a dark location a clear view of the stars			
Blood and Guts <i>And in This Corner...</i> , p.95	balls of clay colored pencils and paper clothespin partner colored paper (red, yellow, blue, black, white, green)			

Planning Pages - Experiments & Supplies

The Eye page 2 of 3				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Easy Genius Science Projects Activity 3.2 <i>A Model of the Human Eye</i> , p.54	spherical glass bowl or vase or brandy glass black construction paper 60 watt frosted light bulb lamp socket sheet of cardboard sheet of white cardboard magnifying glass colored cellophane scissors room you can darken partner water ruler transparent tape			
Easy Genius Science Projects Activity 3.3 <i>The Pupil: Doorway to the Eye</i> , p.57	partner well-lighted room flashlight large needle black construction paper scissors and ruler well-lighted window			
Easy Genius Science Projects Activity 3.4 <i>Are Two Eyes Better Than One When Locating Objects?</i> , p.59	partner 2 pencils Ping Pong ball black felt-tip pen green felt-tip pen red felt-tip pen Styrofoam cup			

## Planning Pages - Experiments & Supplies

The Eye page 3 of 3				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Easy Genius Science Projects Activity 3.7 <i>Afterimages</i> , p.66	60 watt frosted light bulb lamp socket white card or paper white wall timer			
Easy Genius Science Projects Activity 3.8 <i>Afterimages and Color</i> , p.67	white paper table that is well lighted bright 2" squares of construction paper (green, blue, red, yellow, cyan, magenta, black, white)			
Easy Genius Science Projects Activity 3.9 <i>Persistence of Vision</i> , p.70	mailing tube sharp knife an adult ruler tape black construction paper			
Easy Genius Science Projects Activity 3.10 <i>Rods, Cones, and Color</i> , p.71	colored object set of crayons dimly lit room			
Human Body 25 Fantastic Projects - Make Your Own <i>Optical Illusions</i> , p.94	plain white paper ruler color markers and pencils mathematical compass picture of the American flag			

## Planning Pages - Experiments & Supplies

Vestibular System				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>The Will to Keep Still</i> , p.106	cork 2 straight pins clay or modeling beeswax partner lamp which casts a strong light			
Blood and Guts <i>Lag-Behind Effect</i> , p.107	glass of water cinnamon or other powder			
Blood and Guts <i>Upright Without Sight</i> , p.108	chalk line or piece of string pair of binoculars stopwatch			
Blood and Guts <i>Whirls</i> , p.109	partner swivel chair or a swingset			
Blood and Guts <i>Equilibrium Appreciation</i> , p.110	straight-backed chair wall			
Easy Genius Science Projects Activity 2.3 <i>Ears and Balance</i> , p.41	an adult water a wide drinking glass food coloring			

Planning Pages - Experiments & Supplies

The Ear page 1 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Soundscape, p.99</i>	soup can can opener balloon rubber band glue broken mirror (small piece) light source shaded wall			
Blood and Guts <i>Fifteen Minutes on the Ear Canal, p.100</i>	partner flashlight with strong beam piece of paper scissors			
Blood and Guts <i>Meet Your Eustachians, p.101</i>	none			
Blood and Guts <i>Are Two Ears Better Than One?, p.102</i>	partner watch that ticks blindfold paper and pencil			
Blood and Guts <i>Tuning Fork Test, p.103</i>	tuning fork or big all-metal kitchen fork or small dinner fork metal surface			
Easy Genius Science Projects Activity 2.1 <i>Ears, Sounds, and Hearing, p.36</i>	a piano 1 liter plastic soda bottle 2 liter plastic soda bottle partner mailing tubes (several different lengths)			



Planning Pages - Experiments & Supplies

The Ear page 2 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Easy Genius Science Projects Activity 2.2 <i>Ears and Locating Sounds</i> , p.39	tape partner pencil vacuum cleaner hose or piece of garden hose or piece of 1" diameter tubing approx. 3 ft. long			
Human Body 25 Fantastic Projects - Make Your Own <i>Model Ear</i> , p.96	coffee can can opener plastic wrap large rubber band transparent tape straw Ping Pong ball bowl of water partner			
Learning about the World through Modeling <i>The Ear</i> , p.115	partner mirror softball size piece of clay for each person			

## Planning Pages - Experiments & Supplies

### Endocrine System

#### Endocrine Excitement! Activity:

[https://www.teachengineering.org/view\\_activity.php?url=collection/cub\\_/activities/cub\\_human/cub\\_human\\_lesson07\\_activity1.xml](https://www.teachengineering.org/view_activity.php?url=collection/cub_/activities/cub_human/cub_human_lesson07_activity1.xml)

#### Supplies needed:

- two envelopes
- index cards or slips of paper
- pencil
- scissors
- one or more pairs of children

These were the command cards which I wrote on index cards and cut into two puzzle pieces each. Naturally, you can make up any instructions you wish. I placed the pieces into two envelopes, Endocrine System A and Endocrine System B, and the girls had to work together as "hormone" and "receptor" to match the clue halves back up and perform the tasks:

Touch your toes seven times and go check to see if there are any more persimmons.

Pet the rabbit. See if he would like a good brushing. Check his water bottle too.

Run around the house three times and cheer "Hooray!"

Move the elephant coasters to the other end table in the living room and see if anyone notices.

Help Mama make the meatloaf for tonight's dinner. Thank you!

Give Gram a big hug and kiss and tell her you are glad she came. See if she would like a cup of tea.

Put fresh flowers in the upstairs bathroom. Flowers make people smile!

Please use window crayons to write a nice note on the hallway mirror.

Write a note to surprise Adam and hide it someplace, like in one of the pockets of his coat. Put the date on the note. How long will it take him to find it?

Go outside and play in the magnolia tree for 10 minutes. Isn't it a pretty day?

Planning Pages - Experiments & Supplies

Respiratory System page 1 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Percussing, p.60</i>	none			
Blood and Guts <i>Model Lung, p.62</i>	clear plastic bottle plastic wrap & rubber band (to be the lid of the bottle) plastic straw scissors clay or playdough large balloon large rubber band			
Blood and Guts <i>Charting Oxygen Intake, p.63</i>	clock with a second hand paper and pencil clipboard			
Blood and Guts <i>Lung Capacity, p.64</i>	glass gallon jug clear plastic bottle scissors rubber hose sink or large deep pan water masking tape ruler Sharpie			
Blood and Guts <i>In the Bag, p.65</i>	small flat plastic bag *** adult supervision ***			
Blood and Guts <i>Lung Exhaust, p.65</i>	candle and match tall drinking glass an adult small flat plastic bag bag of lung exhaust from "In the Bag" experiment			

Planning Pages - Experiments & Supplies

Respiratory System page 2 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Nose and Throat Connection</i> , p.67	none			
Blood and Guts <i>Hold Your Tongue</i> , p.69	marble			
Easy Genius Science Projects Activity 5.2 <i>Reflexes</i> , p.93  *** DO NOT DO THIS EXPERIMENT IF YOU HAVE A HEART CONDITION ***	cold water ice cubes towel kitchen counter watch with a second hand partner paper and pencil dish pan or large deep casserole dish, at least 10" wide and 3" deep			
<a href="#">Dancing the Relationship Between Photosynthesis and Respiration</a> lesson plan from website (PDF)  <a href="http://www.waldorfcriculum.com/Class8/photosynthesis%20and%20respiration.pdf">www.waldorfcriculum.com/Class8/photosynthesis%20and%20respiration.pdf</a>  Note: If you don't have a large group of students, simply lay the element squares on the piece of green cloth and move them around to make and break molecules.	very large green cloth box of safety pins large piece of grey felt scissors Sharpie chime or bell lots of space to run around at least four people (plant, lung, red blood cell, a distant cell in the body)  prepare in advance: cut 36 squares of grey felt write "C" on 6 squares write "H" on 12 squares write "O" on 18 squares			

Planning Pages - Experiments & Supplies

Digestive System page 1 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Keeping Track</i> , p.77	partner			
Blood and Guts <i>Kitchen Chemistry</i> , p.79 "Test for Fat" "Test for Starch"	brown paper grocery bag scissors a light bulb iodine and eyedropper assorted foods to be tested paper and pencil			
Easy Genius Science Projects Activity 4.1 <i>How Does Food Move Through the Body?</i> , p.74	plastic cup water drinking straw chair saucer bread scissors long thin balloon partner			
Easy Genius Science Projects Activity 4.3 <i>Catalysts and Enzymes</i> , p.79	gelatin two containers fridge kiwi, papaya, or pineapple			
Easy Genius Science Projects Activity 4.4 <i>Digestion, Starch, and Amylase</i> , p.81	*** adult supervision *** safety goggles plastic gloves saltine cracker 3 small glasses spoon tablespoon warm water iodine and eyedropper paper and pencil			

Planning Pages - Experiments & Supplies

Digestive System page 2 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Easy Genius Science Projects Activity 4.5 <i>The Energy Stored in Food</i> , p.83	an adult corn puff peanut, walnut, or cashew nail pencil large (#10) empty can pointed can opener cork aluminum foil pliers large sewing needle sensitive balance metric measuring cup cold water laboratory thermometer matches paper and pen empty 6 oz frozen juice container with metal bottom & cardboard sides			
Human Body 25 Fantastic Projects - Make Your Own <i>Nutrition Balance</i> , p.34	42 dried beans paint in four bright colors wire coat hangers wire cutters pliers foam block string scissors small paper cups clay			

## Planning Pages - Experiments & Supplies

The Teeth				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Nippers, Rippers, Grinders Test, p.33</i>	paper and pencil different kinds of foods, like peanut brittle bananas beef jerky nuts celery apple cheese carrots			
Blood and Guts <i>Tooth Dissection, p.34</i>	baby tooth cloth hammer			
Blood and Guts <i>Acid Attack, p.35</i>	raw egg glass white vinegar baby tooth bottle of your favorite soda calendar			
Blood and Guts <i>Red Alert, p.36</i>	disclosing tablets toothbrush and toothpaste glass of water			
Easy Genius Science Projects Activity 4.2 <i>Teeth are For Chewing, p.77</i>	scissors ruler several Styrofoam cups pen mirror at least one adult child approx. 4 years old			





Planning Pages - Experiments & Supplies

Skeletal System page 1 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Inside a Long Bone</i> , p.27	scapel and blade shin bone which has been sawed in half lengthwise beef knuckle surface for dissecting on pot and stove for boiling			
Blood and Guts <i>Shrink Test</i> , p.29	partner wall pencil measuring tape or stick			
Blood and Guts <i>Great Thumbless Survival Test</i> , p.30	partner tape pencil and paper			
Human Body 25 Fantastic Projects - Make Your Own <i>Decalcifying Bone Experiment</i> , p.55	long chicken or turkey leg bone 6% hydrochloric acid very large glass bowl rubber gloves water baking soda *** adult supervision ***			
Human Body 25 Fantastic Projects - Make Your Own <i>Joints</i> p.56	craft or floral foam blocks felt-tipped pen or marker scissors craft file			
Human Body 25 Fantastic Projects - Make Your Own <i>Flexible Spine</i> , p.58	wooden spools string large marshmallows scissors powdered sugar			

Planning Pages - Experiments & Supplies

Skeletal System page 2 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Learning about the World through Modeling <i>Human Head in the Round</i> , p.114	board clay  heads can be made life size if you have plenty of clay (12 lbs per sculpture to start, according to Elizabeth Auer*)			
Learning about the World through Modeling <i>Bones</i> , p.116	clay femur, or thigh bone, to copy if possible			
Learning about the World through Modeling <i>Joint: Ball and Socket</i> , p.116	clay			
Learning about the World through Modeling <i>Skull</i> , p.116	clay human skull cheesecloth			
Painting and Drawing in Waldorf Schools <i>Modeling and Drawing Vertebrae</i> , p.356	soft pencil (4B to 7B) eraser A4 (letter) drawing paper actual vertebrae clay			

\* If you want to have students work in pairs to sculpt each other's busts, I definitely suggest her book, [Creative Pathways: Activities that Strengthen the Child's Cognitive Forces](#). She, in turn, highly recommends [The Portrait in Clay](#) by Peter Bruno as a resource.

Planning Pages - Experiments & Supplies

Muscular System page 1 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Model Arm</i> , p.39	cardboard squares equal to the length of your arm strong tape hammer and a long nail paper clip two long balloons glove			
Blood and Guts <i>Magnifying Muscles</i> , p.40	steak, chicken, or any other raw muscle meat dissecting needle two clean glass slide or plates light source magnifying glass  stain (optional) red & blue food coloring spoon rubbing alcohol bottle for storing			
Blood and Guts <i>Hairpin Dance</i> , p.43	kitchen knife hair pin (not a bobby pin) or a piece of bent wire table top			
Blood and Guts <i>Calisthenics for Your Face</i> , p.45	mirror (optional)			
Blood and Guts <i>Muscle, Tendon, Joint Dissection</i> , p.46	chicken drumstick and thigh that are still attached scalpel and blade surface for dissecting on			

Planning Pages - Experiments & Supplies

Muscular System page 2 of 2				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Flexercise</i> , p.39	partner			
Easy Genius Science Projects Activity 5.1 <i>Is a Stationary Target Always Easier to Hit?</i> , p.92	sewing needle cardboard thread			
Easy Genius Science Projects Activity 5.4 <i>Muscles Come in Pairs</i> , p.98	bathroom scale (optional)			
Easy Genius Science Projects Activity 5.6 <i>Your Center — of Mass, That Is!</i> , p.101	an adult 12 inch ruler shears cardboard pin thread heavy washer pencil pillow and chair full length mirror deck of cards or a blackboard eraser			
Human Body 25 Fantastic Projects - Make Your Own <i>Working Model Hand</i> , p.45	pencil craft foam scissors straws glue gun string			

Planning Pages - Experiments & Supplies

Integumentary System 1 of 3				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Evaporation</i> , p.12	warm day two socks water			
Blood and Guts <i>Quick Cool</i> , p.12	two cotton balls water rubbing alcohol partner blindfold			
Blood and Guts <i>Sweaty Palms</i> , p.13	writing paper water cornstarch spoon cup iodine soft brush an adult			
Blood and Guts <i>Skin Prints</i> , p.14	soft lead pencil two sheets of paper scotch / transparent tape			
Blood and Guts <i>Map the Back of Your Hand</i> , p.16	ruler fine tip pen sheet of paper pin dull pencil ice cube with a paper clip frozen into it to be a handle a second paper clip hot water			

Planning Pages - Experiments & Supplies

Integumentary System 2 of 3				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Blood and Guts <i>Touchy Points</i> , p.17	cardboard ruler pencil two pins paper partner			
Easy Genius Science Projects Activity 2.6 <i>Touch</i> , p.47	partner tennis ball baseball orange apple peach blindfold			
Easy Genius Science Projects Activity 5.5 <i>Feeling Double</i> , p.100	pencil partner			
Human Body 25 Fantastic Projects - Make Your Own <i>Homemade Skin Care Products</i>  <i>Easy Skin Scrub</i> , p.69	glass jar with cover 1 cup granulated sugar 2 vanilla beans knife  *wait time: several weeks*			
Human Body 25 Fantastic Projects - Make Your Own <i>Homemade Skin Care Products</i>  <i>Strawberry Field Mask</i> , p.70	1 tablespoon plain yogurt bowl 1/2 cup strawberries fork			

Planning Pages - Experiments & Supplies

Integumentary System 3 of 3				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
Human Body 25 Fantastic Projects - Make Your Own <i>Homemade Skin Care Products</i> <i>Bubble Bath</i> , p.70	1 egg white 1 tablespoon honey 1/2 cup gentle liquid soap like Ivory jar spoon			
Human Body 25 Fantastic Projects - Make Your Own <i>Homemade Skin Care Products</i> <i>Bath Fizzies</i> , p.71	2 tablespoons cornstarch 2 tablespoons citric acid powder 1/4 cup baking soda 3 T canola oil bowl spoon molds (optional) food coloring (optional) essential oils (optional)  *wait time: 48 hours*			
Human Body 25 Fantastic Projects - Make Your Own <i>Fingerprint Kit</i> , p.72	graphite pencils sandpaper white piece of paper small container old makeup brush or a feather duster scotch / transparent tape mirror or piece of glass magnifying glass			







Planning Pages - Experiments & Supplies

Reproductive System				
Experiment / Source	Supply List	I Will Do This On...	I Need to Buy...	Notes
<p>read <u><a href="#">Gregor Mendel: The Friar Who Grew Peas</a></u></p> <p>complete activities from <a href="http://www.cherylbar DOE.com/cherylbar DOE/Books_files/Gregor%20Mendel%20Educator%20guide%20.pdf">http://www.cherylbar DOE.com/cherylbar DOE/Books_files/Gregor%20Mendel%20Educator%20guide%20.pdf</a></p>				
<p>Blood and Guts <i>Taking Stock</i>, p.123</p>	<p>none</p>			
<p>Human Body 25 Fantastic Projects - Make Your Own <i>Inheritance Model</i>, p.103</p>	<p>modeling clay paint (optional)</p>			
<p>Human Body 25 Fantastic Projects - Make Your Own <i>DNA Extraction</i>, p.104</p>	<p>rubbing alcohol 1/2 cup green split peas or wheat germ or onions table salt 1 cup water blender cheesecloth large bowl clear liquid dish detergent glass meat tenderizer (must contain papain - check the ingredient list) thin wire (optional) microscope (optional)</p>			

## Planning Pages - Experiments & Supplies

Genetics research seems to be making headlines all the time; check current events! Here are some additional ideas:

- <http://www.npr.org/sections/health-shots/2016/02/03/465319186/babies-with-genes-from-three-people-could-be-ethical-panel-says>  
“Babies With Genes From 3 People Could Be Ethical, Panel Says”  
NPR  
February 2, 2016
- <http://www.charlierose.com/watch/60681600>  
“Michael Milken, one of the biggest medical philanthropists in the country, on medical research today” interview  
Charlie Rose  
February 1, 2016
- Muse magazine issue February 2016, published by Cricket Media  
“Dino-Chickens & Super Kids: Who makes the rules when we tinker with life?” by Merry Dankanich  
“Whose Cell Line is it Anyway?: Science, ethics, and HeLa cells” by Leanne Longwill  
“Maggie Little, Bioethicist” by Lela Nargi  
“Think Like a Bioethicist” by Lela Nargi  
“Tough Bugs: The Secret World of Antibiotic-Resistant Bacteria” by Merry Dankanich
- <http://www.bradshawfoundation.com/journey/>  
“Journey of Mankind: The Peopling of the World” - Stephen Oppenheimer  
A virtual global journey of modern man over the last 160,000 years - based on a synthesis of the mtDNA and Y chromosome evidence with archaeology, climatology and fossil study. <http://www.bradshawfoundation.com/stephenoppenheimer/index.php>
- <https://www.youtube.com/watch?v=HaHeAdJNa70>  
“What’s Left to Explore?” TED talk - Nathan Wolfe  
May 21, 2012

Our follow-up activities for the Reproductive System also included having Natalie draw her family tree, research her famous ancestors (including two U.S. presidents and a vice-president), and complete her Daughters of the American Revolution application.

Looking for some interesting reading for the parent? I highly recommend [The Edison Gene: ADHD and the Gift of the Hunter Child](#) by Thom Hartmann.