

LIVING MATH THROUGH HISTORY

Intermediate Introduction

Intermediate Level is written for
Upper elementary to early middle school children

Parent Orientation - How to Use the Course

Welcome to Living Math! You are embarking on a different way of learning, studying and enjoying math and history.

Each lesson plan consists of multiple elements:

Synopsis - written for parents to understand background and context

Core and suggested reading and math vignettes, with comments on suitability

Video resources

Language and literature tie-ins, vocabulary, quotes, discussion questions

Geography and timeline

Math and science related **activities** and **internet sites**

Downloadable activities

Some lessons will be heavier on certain components than others depending on availability of resources.

Intermediate resources include denser text sources and require higher level reasoning skills than Primary. Some children at this level may not read more advanced materials well on their own, or may not get much out of the reading on their own. Read aloud may still be a main form of learning, or a combination. Additional resources from the Primary level may also be suggested for younger Intermediate kids, as I have found with my own children these books stretch up many levels as enjoyable ways to review and reinforce concepts.

This level uses more downloadable handouts and activities than the Primary level as well, as these lend themselves more to children with basic multiplication skills and up.

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There are many good resources for the study of math and history, and I have suggested more in these plans than you can likely use, in the knowledge you may have access only to some and therefore multiple sources provides choices. You do not need to purchase everything suggested.

Pick and choose what will work best for you and your family. Selecting just those readers and activities you feel would appeal to your child is appropriate. Many will be a challenge, *so go for quality rather than quantity.* One mom likened it to a unit study buffet - that's exactly how our family has used materials like these for years.

Pacing: The pace of the course is completely up to you. Much of the material in each lesson plan can be covered in two weeks, but families have usually spent more time than this on the material. At one time suggested schedules were included in the plans but were removed at the request of families, as it became apparent these detracted from the intent of the material and stressed families out thinking they were behind if they did not keep up with the schedule.

Do I use math curriculum with this program? This seems to be THE question, doesn't it?. In an article on the website, I have accumulated the experience of many families. <http://www.livingmath.net/UsingLivingMathArticle/tabid/1026/Default.aspx> The answer is, it depends on what kind of mentor/teacher you are, your educational philosophy, and if you can use curriculum as a tool rather than a taskmaster, to give you insight in how to help your child understand. Most families find that at a minimum, you will rely less on curriculum and be able to cut the work you are doing in that area.
















There is one online resource that I have found to have many features that can be blended with Living Math, if more is desired. The Mathematics Enhancement Project (MEP) is available to download for free. <http://www.cimt.plymouth.ac.uk/projects/mep/default.htm> The emphasis is on developing mathematical thinking. Ideas from the non-traditional reasoning activities in the teacher's lesson plans can be done separately from the arithmetic and drill exercises, and this is where we have found the most value.

History Cycle Notes: The course is designed around two history cycles of four quarters each. Each quarter unit has a focus on a theme. Refer to the Living Math Lessons Plans page for outlines of the full eight quarters of lesson plans.

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Living Math Lesson Plans Icon Key


- | | |
|--|---|
|  Best done with two or more people |  Writing or drawing activity |
|  Book resource in print and/or online |  Quote to think about or discuss |
|  Highly visual resource, pictures |  Discussion activity |
|  Printable handout |  Internet website |
|  Hands on activity |  Math activity, calculator |
|  Primary,  Intermediate or |  Video resource |
|  Advanced level |  Solutions |

Following is a description of lesson plan elements and how they are used.

Synopsis - These are original synopses written to give you and your child a taste of the highlights of each mathematician's life and accomplishments. Each mathematician is selected for his or her place in a thread of discovery. This will also provide more background for those users of the plans who may not have access to all the recommended reading.


The synopses are written for parents, and middle school kids on up. You may read these to younger kids if they assist your child in understanding some of the concepts, or paraphrase content to bring it to their level as needed.

Reading and Literature

 **Joy of Mathematics**, *Discovering Mathematics All Around You*, by Theoni Pappas. This is a book of short math vignettes that are used throughout the course at every level. At the Intermediate level, the Joy of Mathematics reading is for the kids to explore on their own, and/or parents to learn and communicate a large variety of ideas with/to their children. Some lessons have included notes and resources on how to get more out of the Joy of Mathematics vignettes, as they are intended to spark interest and further exploration.

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 **READING:** The readers are a core element of the course. Suggested activities revolve around the reading topics.


Use judgment and discretion with reading assignments for this age group

These are wonderful books, but be sensitive that you do not demand too much attention span for your child's maturity. Using your judgment and knowledge of your child to shorten and abbreviate based on interest is appropriate, especially as this approach is often new to both of you.

For older children, it is suggested you aside time for reading aloud in your family schedule. One idea is to put a stack of the books you plan to read over the course of the week along with an atlas in a central place like a coffee table, or a basket handy throughout the week.

Allow "bunny paths" when a strong interest leads down tangents. Also, if your child is into the topic, go ahead and read ahead. Use the materials to work for your family, not the other way around.

 **Math Talk Poetry in Two Voices** by Theoni Pappas: You will need to read in "two voices" for this to come off the way it should, so make sure you have someone around that knows how to do this. It takes just a minute or two, but is very effective, especially in groups (in fact, it can be hard to get people to stop!)

 **MathFocus** readers and resources are suggested for families wanting to integrate more applied math into the program. These are non-curriculum, living math readers or sources of problem solving sets that provide conceptual instruction and math problems in a story or theme context.


Challenge Math for the Elementary and Middle School Student by Edward Zaccaro includes 19 themed chapters that are suggested for all four units of Cycle 1. Most chapters are independent units and can be done out of order to match themes within the lessons.

Additional **MathFocus** readers are suggested in individual units.



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Mathematical Focus Ideas

 **Mathematical Ideas:** These sections highlight ideas mathematicians are known for. For younger children, these are primarily for parents to learn and find openings to discuss.


Language activities

 **Quotes, Discussion and**  **Vocabulary** are for verbal exploration and tying math in with language. Again, as the parent, you would take the lead, but discuss these with your child with open ended questions, such as, what do you think this means? For a child that does copywork, weekly copying of the definition and/or quote would be a way of reinforcing this. Some kids really enjoy doing this, and some hate it, use the technique if it works.

Have a good dictionary available, and a math terms glossary is available at your download site to help you distinguish word usages from everyday. **Math Dictionary for Kids** by Theresa R. Fitzgerald is recommended if you would like a print version.

Symbols cross borders: The origination and history of our math symbols are in this section, beginning with Unit 2.

Geography and Timeline

 **Geography and Timeline:** I suggest you use a mark-it map and a blank timeline. One of many sites you can use for free templates is this one:

<http://www.enchantedlearning.com/geography/label/latlong/>


Have your atlas along with you and take short breaks while reading the history to identify the places discussed. Older kids can add longitude / latitude activities. Many families use an atlas, a globe, and mark-it map resources year long.

You may wish to keep a timeline. As you are reading the history books, drawing or using a timeline would reinforce this. A wall timeline is very effective, where you can add each character and event as you go along. If wall space is limited, timeline books are fine, these can be made or purchased. Instructions on how to make one are here:


<http://donnayoung.org/history/timeline-cw.htm>




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 **What Was Happening When . . .** This section identifies contemporary people to the mathematician studied. Many of these sections have a question to research. Some will be very obvious, but for some, enough key words have been provided to do an internet search and find the answer, if it cannot be found in your own research materials.


Math Activities

 **Mathematical Activities:** Suggestions in these sections may be posted as separate worksheets, handouts, or be recommended from within book and internet resources.

 (Primary)  (Intermediate)  (Advanced) indicate the level the activity is appropriate for. Some activities can be more easily adapted to multi-level use than others, and these are indicated with more than one level. A + indicates the activity is stretching the top end of the level.


 **IMPORTANT NOTE:** Parents should be involved in screening internet material. While all attempts have been made to ensure links do not contain objectionable material, it is not possible to read everything that is linked from links, nor can content changes be controlled after a site has been linked.

Handouts

 **Handouts** consist of activity files created for the Living Math program. You have permission to make copies for members within a family.

See the Living Math website, Lesson Plan Information for sharing arrangements with co-op or other group use settings.

Other

 **Video or Audio Resources** Most are recommended as parent resources. A few are appropriate for younger children, and these will be indicated in the plans.

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Activity Book Resources

There are several activity and vignette resources that have content correlating with all eight Living Math units. Each has pros and cons to consider, depending on what levels you are using. The information on the following pages is provide to assist you in deciding which resources you may want to purchase to supplement the activities in the lesson plans. Again, you do not have to purchase all of these.