

**Curious about Curiosity?** Join the Morgan County Forum for Arts, Sciences & Technologies (**FAST**).

In 1743, Benjamin Franklin started the country's first forum where people could communicate their **records and interpretations of "all philosophical Experiments that let Light into the Nature of Things, tend to increase the Power of Man over Matter, and multiply the Conveniences or Pleasures of Life."** Then, the study of Nature (science and technology) was called "natural philosophy", and the club was the American Philosophical Society.

It included doctors, lawyers, clergymen, merchants, artisans and tradesmen like Franklin. They helped America's economic independence by improving agriculture, manufacturing, and transportation. They also helped prepare Lewis and Clark about scientific, linguistic, and anthropological aspects of their exploration of the Louisiana Territory.

In 2003, the Morgan County Forum for Arts, Sciences and Technologies (**FAST**) began community discussions to help all Morgan County residents find ways to "**let Light into the Nature of Things, tend to increase the Power of Man over Matter, and multiply the Conveniences or Pleasures of Life.**"

**FAST** is a tax-exempt, non-profit charitable corporation under IRS Code, Section 501(c)(3). It is supported by grants, donations, membership dues, and other income related to its purpose. Its primary mission is informal education to advance the use of arts, sciences and technologies in the daily lives of individuals in Morgan County. You can send tax-exempt donations to **FAST**, P.O. Box 674, Berkeley Springs, WV 25411. More information is at <http://www.fastlearner.org>.

Each year, the Hands-On Room and the Fair Exhibit Contest Awards has portable exhibits to stimulate curiosity and discussion about arts, sciences and technologies. **FAST** supports a wide range of other informal learning experiences, including community discussions of films and books on nutrition and health, the "*Morgan County Menus*" booklet, Senior Life Services Center activities, internet access to WV codes and local government documents, radar speed signs, community theater projects, advanced training and the Piano Laboratory.

Join **FAST**, see the website <http://www.fastlearner.org>, contact us at [wemlands@att.net](mailto:wemlands@att.net) and **help plan the 2009 Hands-On Room!**

Welcome to the 2008 Hands-On Room

## **CHANGES OVER TIME**

*Pictographs & Art with Light waves;  
Phonemes & Speech with Sound waves;  
Color with Light waves  
Explore with Infra-red, X-ray & Radio waves;*

*all have intensity, frequency & duration  
to send ideas & moods to people*

**WOW!** (look at that!)

**HOW?** (does it work?)

**NOW** (learning is fun)

Be a **FAST** learner with the Morgan County Forum for Arts, Sciences & Technologies, Inc. (**FAST**)

<http://www.fastlearner.org>

# Hands-On Room Floor Plan

<b>Sciences- Components &amp; Questions</b>	#S1 Portion Distortion	#S2 It's Only Sugar	#S3 Energy Balance & handout	#S4 Effects of Food Choices
#A5 Seeing & Making <b>Colors</b>				
#A4 Matching phonemes to text & text to voice				
#A3 Sounds & Songs & Harmonics & Resonance				Morgan Co. Menus
#A2 See Alphabets & phonemes			Be a <b>FAST</b> learner	
#A1 Moebius & perspectives			Win a prize	
<b>Arts- Questions, Perceptions &amp; Escher</b>				

Tree Rings  
Tell Stories  
About Time

**ENTRANCE**

# Hands-On Room Floor Plan

#S5 Food & Vessel Damage	#S6 Wellness Food & Spice taste & smell	#S7 magnets & electrostatics & Tesla	#S8 Scale Model of Solar system
			#S8 Scale Model of Solar system
			<b>Technologies- Components &amp; Questions</b>
	County map aerial photo		#T1 Map of County Homes
	County map aerial photo		#T2 Broadband access map
			#T3 Morgan County Hydrogeology
	clipboard suggested changes		#T4 sand & clay & water

**EXIT**

## What triggers curiosity?

This year, **FAST's** 2-day museum shows:

Seasons come in waves: Rings in this oak tree mark 200 years of changing seasons over time

- > **Did the sun and rain differ over time?**
- > **What else differed over time?**

### ENTRANCE

**ART** uses waves to make people think about perceived reality - that changes over time

A1 - Perspectives & perceptions - - - light waves & pictures,

- > **Optical Mirages; Escher posters;**
- > **Make a Moebius Band**

A2 - How our language looks and sounds- -

- > **Pictures became alphabets**
- > **Phoenicians wrote phonemes**

A3 - Sound wave patterns & voiceprint spectra (syrinx software)

- > **See your name in sound waves. Print a copy.**
- > **See Harmonics and resonance**

A4 - Phoneme recognition & simulation

- > **use computer to detect phonemes to printed text**
- > **use computer to convert printed text to phonemes**

A5 - Seeing colors in art - - What waves make light?

- > **See a 3 min. show of waves and colors**
- > **Use the light box to make any color**

**SCIENCE** uses waves to test & interpret perceptions of reality - that change over time

S1 - Portion Distortion - food servings changed over time

- > **Answer questions on food energy**

S2 - "It's Only Sugar" exhibit of a high school class of 10 boys & 10 girls and added sugar eaten. Which matches you?

- > **Match calories in to calories out**

S3 - Energy expenditure; activity log-sheet

- > **Win a free pedometer (to check your own activity)**

S4 - Effects of Food Choices

- > **See short videos about food, omega-3 and health**

S5 - Blood vessel injuries collect over time

- > **See how food-caused injury grows over time**

S6 - School wellness and food choices:

- > **Explore spices: smell & taste adventures**

S7 - Charged or magnetic fields can be static or moving;

you are a capacitor

- > **See a magnetic field.**

- > **Measure static charge**

- > **How does an induction flashlight work?**

S8 - How big, how far? scale model of solar system; a sense of space & time;

- > **See Pluto at the Observatory**

**TECHNOLOGY** uses waves to build better realities - that change over time

Electromagnetic waves; Tesla; radar speed sign, etc.

T1 - Populations can come in waves to our rural, mountainous County

- > **See the low-density scatter of homesites**

T2 - High-speed broadband internet access & county topology

- > **Home learning & home business with internet**
- > **See the world with a broadband connection**

T3 - Cacapon geology is a wave in the Earth's surface

- > **Which geologic layer holds your well water?**

T4 - Weather comes in waves: Rain & groundwater in Morgan County. Which geologic formation feeds your well?

- > **Water flows through sand, shale or clay?**
- > **Does the oak tree show steady yearly sun & rain?**

- Does **attention** come in waves?? *intensity, frequency and duration*

- Does **curiosity** come in waves?? *intensity, frequency and duration*

- Does **learning** come in waves?? *intensity, frequency and duration*

EXIT

## Reading & Weblinks to Learn More

- **Perceptions and Perspectives and Mirage: Perceived Reality.**

"Transforming Vision: Writers on Art" by Art Institute of Chicago

- **M.C. Escher exhibit.** See: <http://www.mcescher.com/>.

- **Moebius band display:** "Innumeracy," J.A. Paulos, Random House.

See: [http://www.cut-the-knot.org/do\\_you\\_know/moebius.shtml](http://www.cut-the-knot.org/do_you_know/moebius.shtml) &

[http://www.math.ohio-](http://www.math.ohio-state.edu/~fiedorow/math655/yale/math.htm#define-surface)

[state.edu/~fiedorow/math655/yale/math.htm#define-surface](http://www.math.ohio-state.edu/~fiedorow/math655/yale/math.htm#define-surface)

- **Alphabet origins and phonemes:** "Letter Perfect: The Marvelous

History of Our Alphabet From A to Z" by David Sacks, Random House

Inc.; See: <http://syrinxpc.com> & <http://www.scansoft.com/viavoice/> &

<http://www.uponreflection.co.uk/heiro>

- **Harmonics and resonance .** "Fundamentals of Musical Acoustics" by

A.H. Benade, Oxford University Press, New York, 1976.; "Science and

Music" by Sir James Jeans, Cambridge University Press. 1937 ;

"Horns, Strings and Harmony" by A.H. Benade, Doubleday, New York,

1960. See: <http://www.school-for-champions.com/senses/hearpitch.htm>

- **Computerized phoneme recognition and simulation: Via Voice;**

See: <http://www-306.ibm.com/software/voice/viavoice/> &

[alpha.furman.edu/~wrogers/phonemes](http://alpha.furman.edu/~wrogers/phonemes)

- **Colors and the electromagnetic spectrum:** See:

[http://www.lbl.gov/MicroWorlds/ALSTool/EMSpec/EMSpec2.ht](http://www.lbl.gov/MicroWorlds/ALSTool/EMSpec/EMSpec2.html)

[ml](http://www.visionchannel.net/colorvision/) & <http://www.visionchannel.net/colorvision/>

- **Sciences:** "The Demon-Haunted World", C. Sagan, Ballantine Books;

"Surely You're Joking, Mr. Feynman," R.P. Feynman, Bantam Books;

"The Structure of Scientific Revolutions," T.S. Kuhn, University of

Chicago Press

- **Portion Distortion:** See: <http://hp2010.nhlbihin.net/portion/>

- **Stop two simple diet imbalances that cause an epidemic:** read

"Morgan County Menus" by Matthew Hahn & Bill Lands; "The Ultimate

Omega-3 Diet" by Evelyn Tribole, McGraw Hill; "The Queen of Fats" by

Susan Allport, Univ.Calif.Press; "Fish, Omega-3 and Human Health,"

by William Lands; the Morgan County Library has the KIM-2 food

choice software on its computers & free downloads are from

<http://efaeducation.nih.gov/sig/kim.html>

- **Heart Attacks Begin in Childhood:** "Heart Failure," by Thomas

Moore, Simon & Schuster; for Health Resources, see: [healthfinder.gov](http://healthfinder.gov)

and 18 million reports at <http://www.ncbi.nlm.nih.gov/sites/entrez>

- **School Wellness and Food Choices:** " Food Politics: How the Food

Industry Influences Nutrition and Health," by Marion Nestle, University of

California Press, 2002; See:

[http://www.fns.usda.gov/tn/Resources/usda\\_recipes.html](http://www.fns.usda.gov/tn/Resources/usda_recipes.html) &

[http://www.fns.usda.gov/tn/Healthy/wellness\\_policyrequirements.](http://www.fns.usda.gov/tn/Healthy/wellness_policyrequirements.html)

[html](http://www.fns.usda.gov/tn/Healthy/wellness_policyrequirements.html)

- **Static electric fields and magnets:** "Bolt of Fate" by Tom

Tucker, Sutton Publ.Ltd.; "Tesla: Man out of Time" by M.Cheney,

Touchstone Publ.;

- **How Big, How Far?:** "Turn Left at Orion," G. Consolmango & D. M.

Davis, Cambridge University Press; also see: [www.nitesky.org](http://www.nitesky.org)

- **Using Waves to Build Better Realities:** "How Things Work," by N.

Ardley, Readers Digest Books; for "Powers of 10", See:

[micro.magnet.fsu.edu/primer/java/SGienceopticsu/powersof10/](http://micro.magnet.fsu.edu/primer/java/SGienceopticsu/powersof10/)

• Location Resources: See: [mapquest.com](http://mapquest.com) & [earth.google.com](http://earth.google.com)

- **County Topology & Water Supply:** "The Man Who Found Time," J.

Repcheck, Perseus Publishing; "Water," A. Outwater, Harper-Collins

Publishing. <http://waterdata.usgs.gov/ww/nwis/rt>; read USGS report on

Morgan County wells at

[http://pubs.usgs.gov/sir/2006/5198/pdf/sir20065198\\_web.pdf](http://pubs.usgs.gov/sir/2006/5198/pdf/sir20065198_web.pdf)

learn about County water system costs from the report:

[http://www.morgancountyeda.com/gov/Final\\_Report\\_Vol\\_2\\_of\\_2\\_Marc](http://www.morgancountyeda.com/gov/Final_Report_Vol_2_of_2_Marc)

[h\\_2007.pdf](http://www.morgancountyeda.com/gov/Final_Report_Vol_2_of_2_Marc)