

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 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, radar speed signs plus community theater projects, advanced training and the Piano Laboratory.

Join **FAST** at the website <http://www.fastlearner.org> or contact us at wemlands@att.net - and **help us plan the 2008 Hands-On Room!**

Welcome
to the 2007 **FAST** Hands-On Room

MAKING WAVES

*Light waves; Sound waves;
Radio waves; X-ray waves;
Brain waves; Wireless waves
for communicating*

all have intensity, frequency and duration

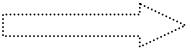
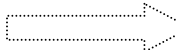
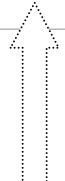
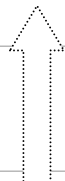


WOW! (look at that!)

HOW? (does it work?)

NOW (learning is fun)

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


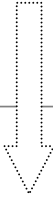

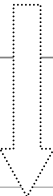
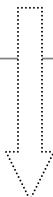
Hands-On Room Floor Plan

Sciences-Components & Questions	#S1 Use a spectro-graph	#S2 Prevent heart disease & <u>4min show</u> "imbalances"	#S3 Its Only Sugar	#S4 Energy Balance handout & pedometers
#A5 Colors & <u>3min show</u> of spectrum				
#A4 Voice to text & text to voice music "voices"				
#A3 Sounds & Songs & Harmonics & Resonance			Morgan Co. Menus	win a pedometer
#A2 See Alphabets & phonemes			Past <i>FAST</i> Events	
#A1 Escher & Moebius perspectives				
Arts-Components & Questions & Perceptions				

**Tree Rings
Tell Stories**

ENTRANCE

Hands-On Room Floor Plan

#S5 omega-3 & <u>2min show</u>	#S6 Wellness Food & Spice taste & smell	#S7 magnets & electrostatics & Tesla	#S8 Models of Solar system & near stars
			Technologies-Components & Questions
			#T1 County trailer for wireless
	County map aerial photo		#T2 Broadband access map
	County map aerial photo		#T3 Map of County Homes
			#T4 Morgan County Hydrogeology
	clipboard suggested changes		#T5 sand & clay & water

EXIT

Each year **FAST's** 2-day museum shows

Some events come in waves (seasons): Yearly rings in this red oak tree mark 200 years of history

--> **Does it show the same rain each year?**

ENTRANCE

ART uses waves to make people think about perceived reality;

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 in different "voices" of musical instruments**

A4 - Phoneme recognition & simulation

--> **use ViaVoice to recognize and to create voice**

--> **use computers to create music**

A5 - Light waves & color in art - - What waves make light?

--> **See a 3 min. show of waves and colors**

--> **Use a spectroscope**

SCIENCE uses waves to test & interpret perceptions of reality

S1 - Electromagnetic waves are infrared, ultraviolet, radar, microwave, radio, x-rays, gamma rays

--> **Use a spectrograph**

S2 - Food comes in waves (meals): Prevent diet imbalances causing an epidemic of deaths

--> **See a 4 min show on preventing disease**

S3 - "It's Only Sugar" exhibit of a high school class of 10 boys & 10 girls and added sugar eaten. Which matches you?

--> **Win a prize for knowing Cals/mile**

S4 - Energy expenditure; activity log-sheet; free pedometers

--> **Win a free pedometer (to learn the truth)**

S5 - Learn PubMed & Loansome Doc information service

--> **See a 2 min show about omega-3 and health**

S6 - School wellness and food choices:

--> **Spices give food flavor adventures**

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

you are a capacitor

--> **See a magnetic field.**

--> **Measure a body's static charge**

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

S8 - How big, how far? scale models of solar system; a sense of space & time; galaxies (years, light years & powers of ten).

--> **Get Sirius at the Observatory**

TECHNOLOGY uses waves to build better realities

Electromagnetic waves; Tesla; radar speed sign, etc.

T1 - Wireless Communications Interoperability Mobile Unit; - -

--> **Connecting every home & location in the County**

T2 - High-speed broadband internet access & county topology

--> **Home learning & home business with internet**

--> **See the world** with a broadband connection

T3 - Populations can come in waves to our rural, mountainous County

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

T4 - Cacapon geology is a wave in the Earth's surface

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

T5 - Weather comes in waves: Rain & groundwater in Morgan County. Which geologic formation feeds your well?

--> **Water flows through sand, shale or clay?**

--> **Does the red oak tree show steady yearly 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 List for Learning 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.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

- **Music Keyboard Display:** See:

[http://www.yamaha.com/yamahavgn/CDA/List/ModelSeriesList/](http://www.yamaha.com/yamahavgn/CDA/List/ModelSeriesList/0.6384.CTIP%253P220800%2526CNTYP%253PPRODUCT.00.html)

[0.6384.CTIP%253P220800%2526CNTYP%253PPRODUCT.00.html](http://www.yamaha.com/yamahavgn/CDA/List/ModelSeriesList/0.6384.CTIP%253P220800%2526CNTYP%253PPRODUCT.00.html)

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

<http://www.lbl.gov/MicroWorlds/ALSTool/>

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

<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

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

Moore, Simon & Schuster; see Health Finder Resources: See:

healthfinder.gov;

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

"Morgan County Menu" 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; also, the County Library has "Fish,

Omega-3 and Human Health," by William Lands plus KIM-2

software on its computers; See: <http://efaeducation.nih.gov/sig/ods.html>

- **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/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; See: www.nitesky.org

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

Ardley, Readers Digest Books; Portion Distortion: See:

hin.nhlbi.nih.gov/portion/; for "Powers of 10", See:

micro.magnet.fsu.edu/primer/java/SGienceopticsu/powersof10/

• Location Resources: See: mapquest.com & earth.google.com

- **County Water Systems:** "The Man Who Found Time," J. Repcheck,

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

See data at: http://oaspub.epa.gov/enviro/sdw_form.create

[_page?state_abbr=WV](http://oaspub.epa.gov/enviro/sdw_form.create) & <http://waterdata.usgs.gov/wv/nwis/rt>;

read USGS report on Morgan County wells at

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

[h_2007.pdf](http://www.morgancountyeda.com/gov/Final_Report_Vol_2_of_2_Marc)