

DR. MARK'S

STEMusic



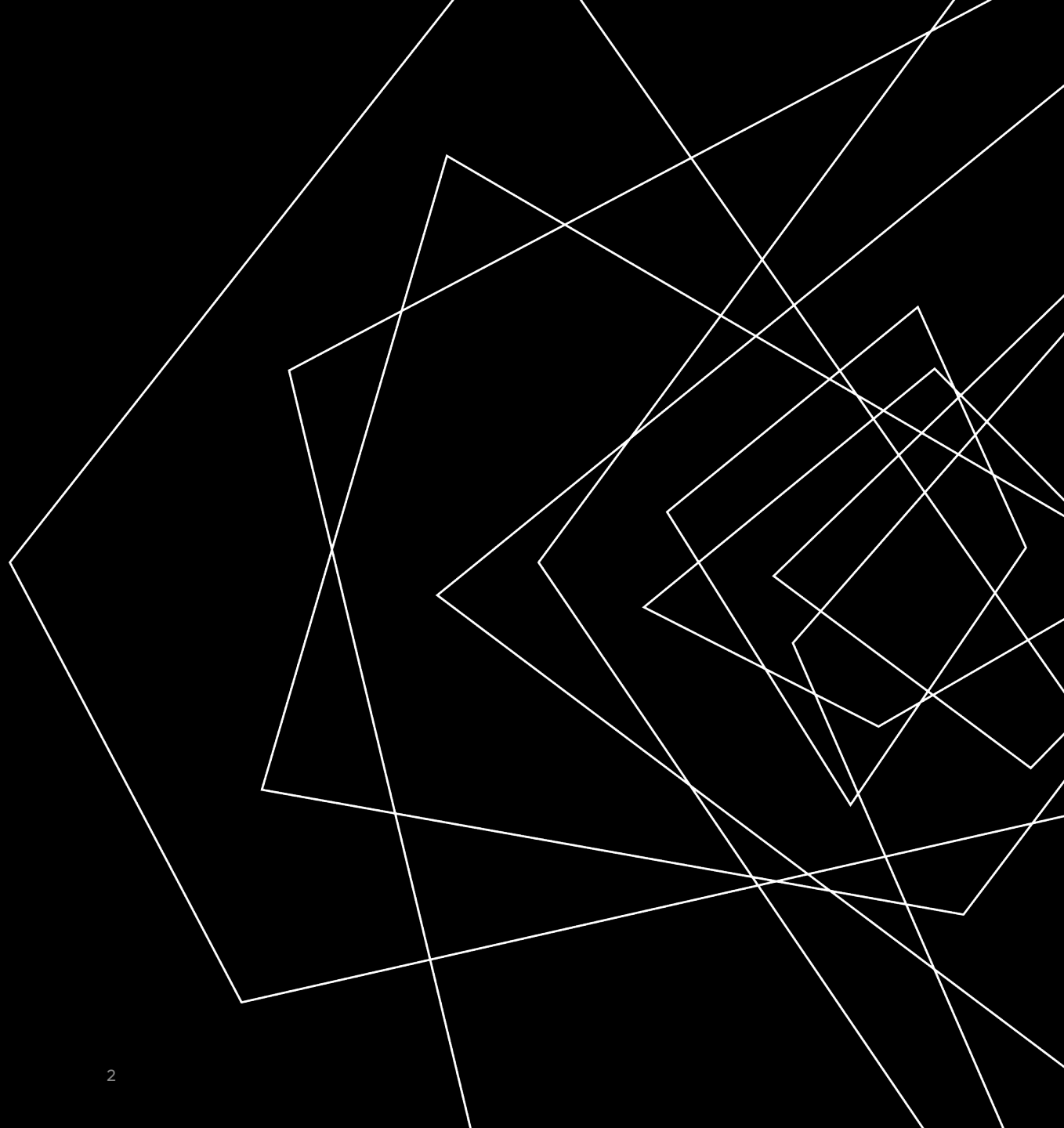
The science and significance of sound. ®

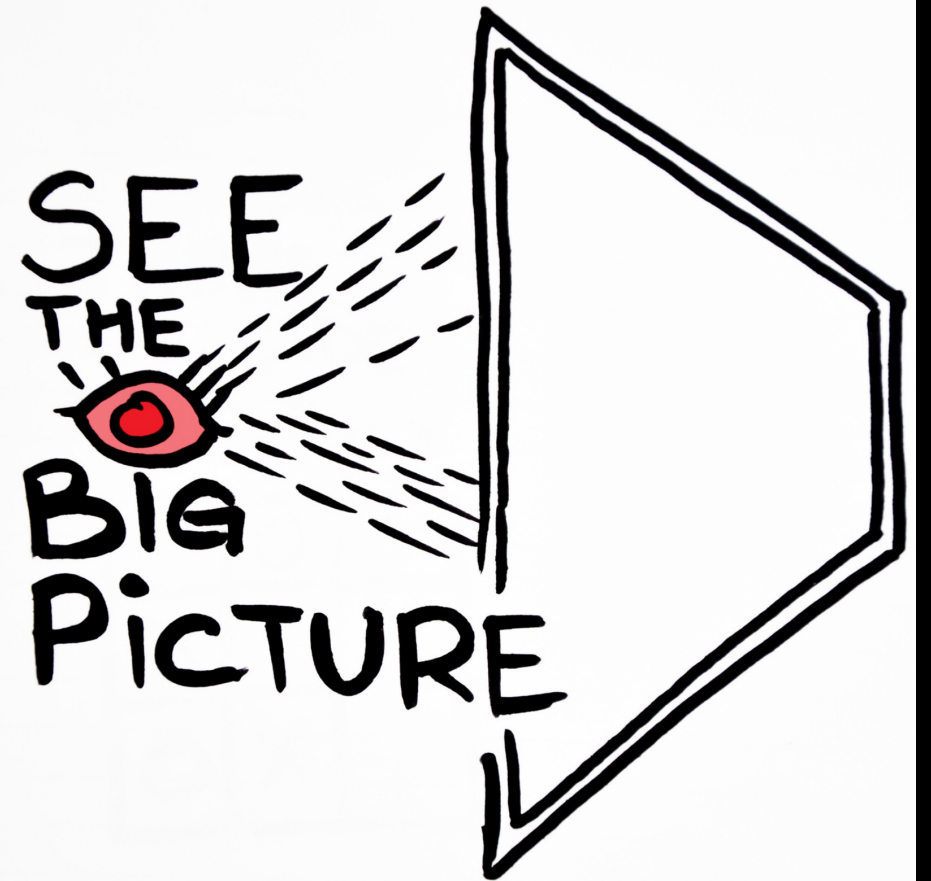
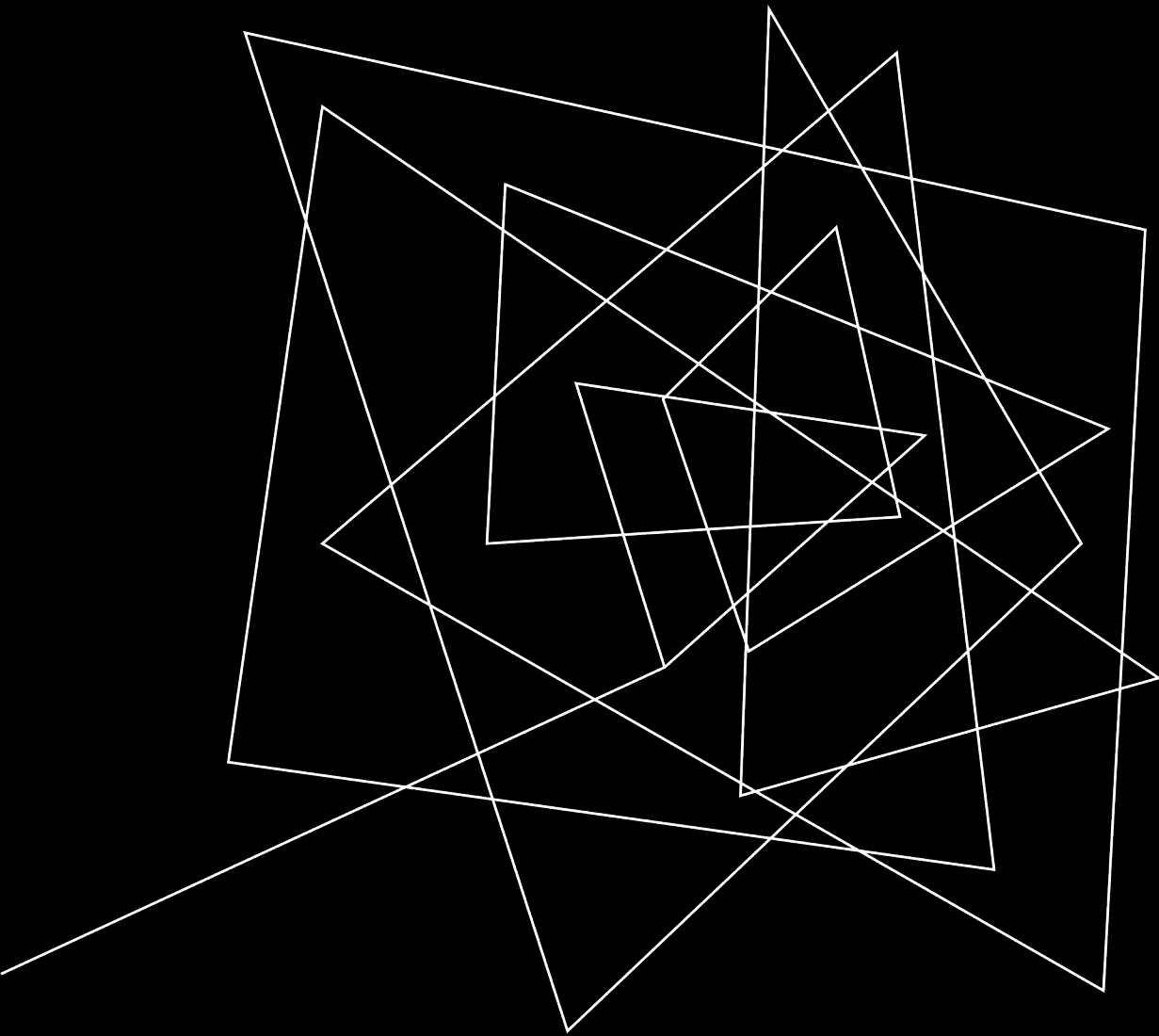
PROPORTION, PATTERNS & VARIABLES

Experiences that support mathematical and scientific thinking.

OBJECTIVE

To reconnect adolescents' cognitive development to kinesthetic experience through mechanical manipulation of sound waves.





SOLVE FOR X

$$2 \text{ ♯} + \frac{x}{2} = \text{♩}.$$

SOLVE FOR X

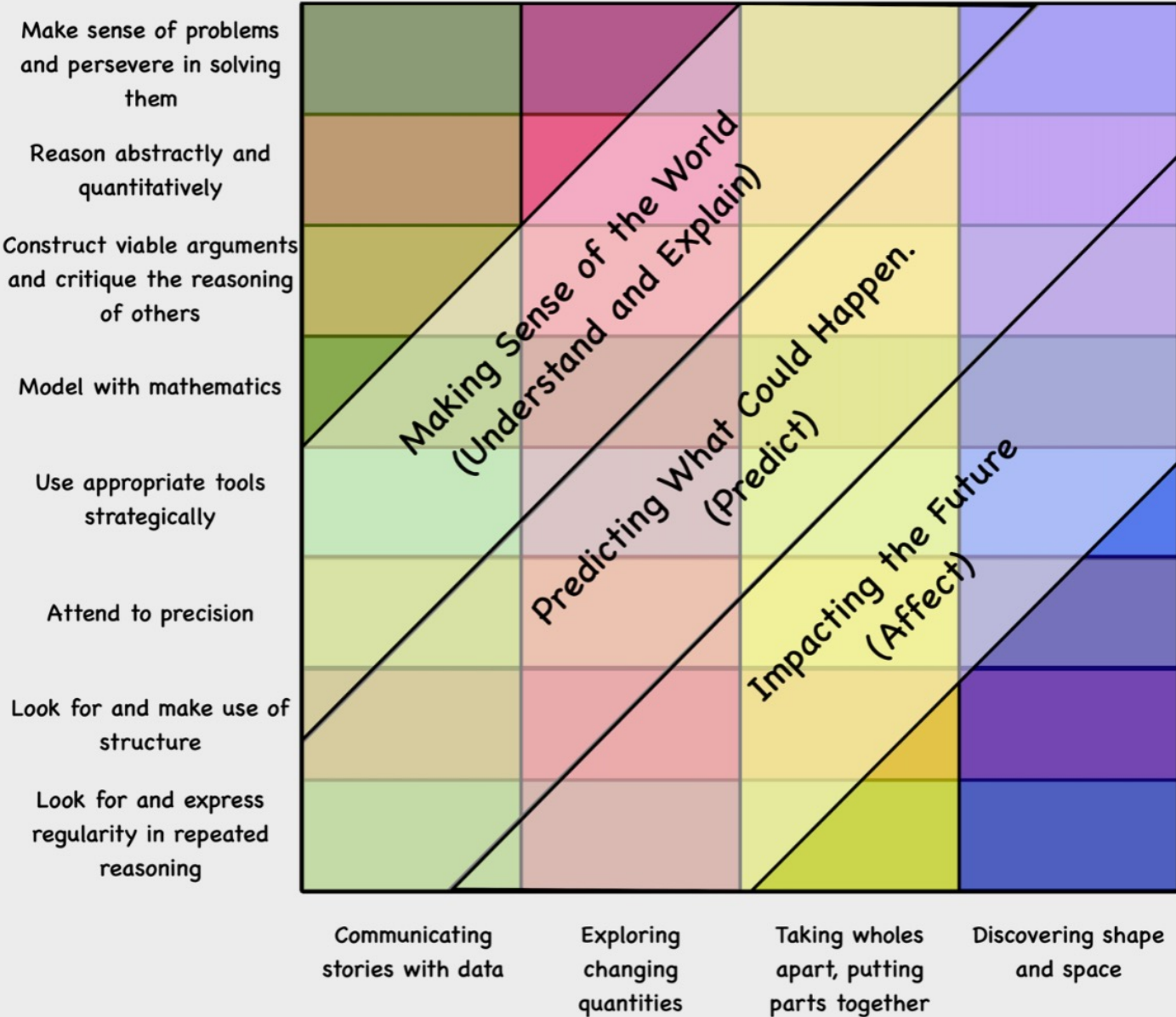
$$2 \text{ eighth notes} + \frac{\text{quarter note}}{2} = \text{quarter note}$$

SOLVE FOR X

All music
is math,

$$2 \text{ eighth notes} + \frac{\text{half note}}{2} = \text{quarter note}$$

but not all
math is music.



Courtesy of www.youCubed.org

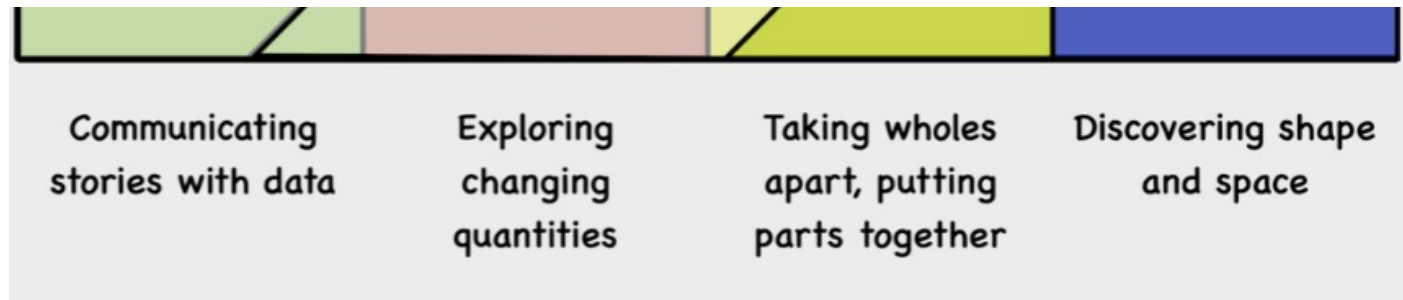


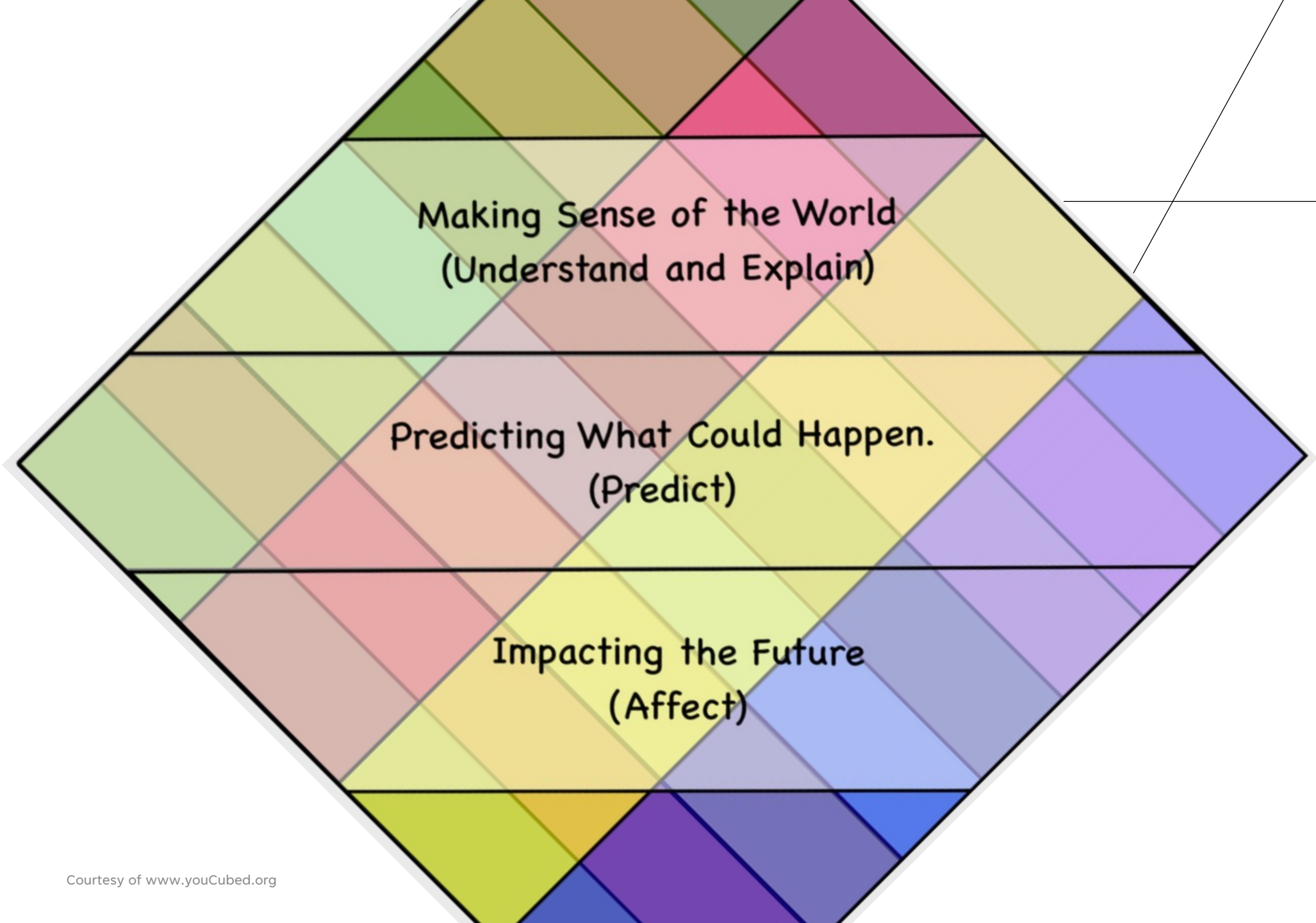
AUTHENTIC EXPERIENCES IN SOUND

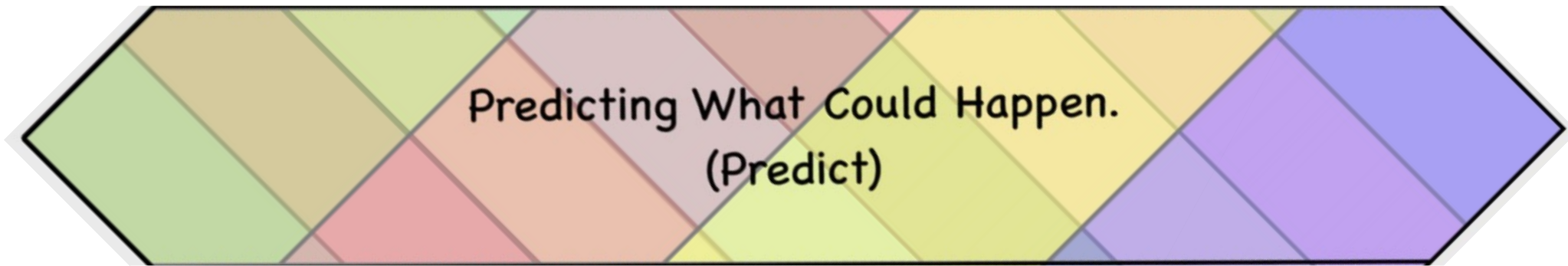
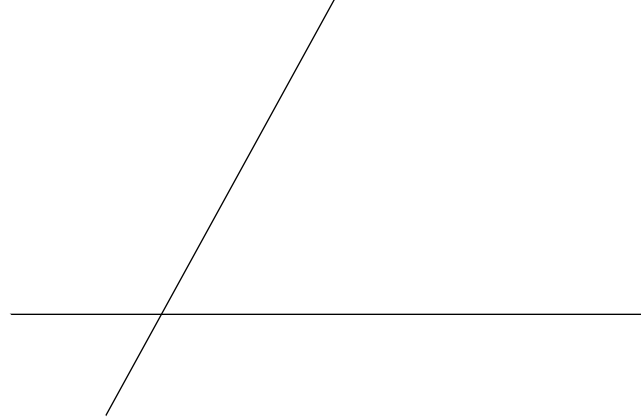
- Problems and perseverance.
- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

From National Standards' Mathematical Practices.

AUTHENTIC EXPERIENCES IN SOUND







NATIONAL STANDARDS

Grade 6


Ratio and Proportional Relations
Dependent and Independent
Variables

Grade 7

Analyze proportional relations
Random Sampling

Grade 8

Proportional relations, lines, and
linear equations.



LET'S APPROACH INNOVATION BY
ADDING NEW WRINKLES TO AN OLD
IDEA AND USING THINGS WE
ALREADY HAVE.

Dr. Mark

Aerophone Build

Ratio, measurement, collecting data, proportion, graphing data, expressing relations mathematically, & symbolizing the music created.

Music Puzzles

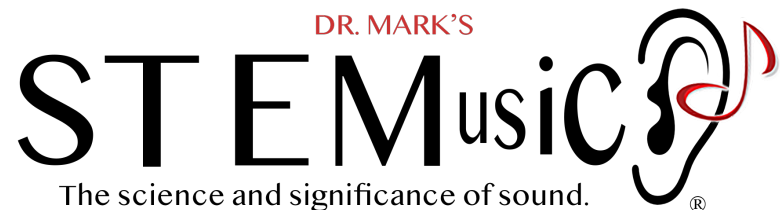
Perseverance, persistence, ratio, attention to detail, proportion, assembling music from its parts to create a new whole.

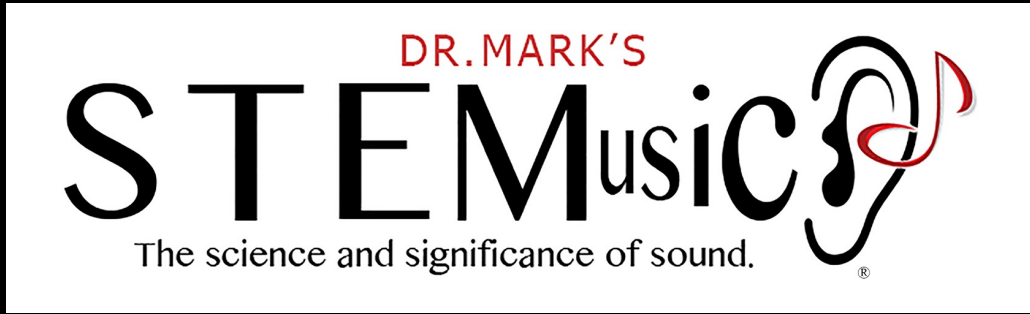
Puzzle Permutations

Scientific method, collecting data, sampling, creating permutations of a well-known song, asking questions, data analysis, and reporting findings.

Under development

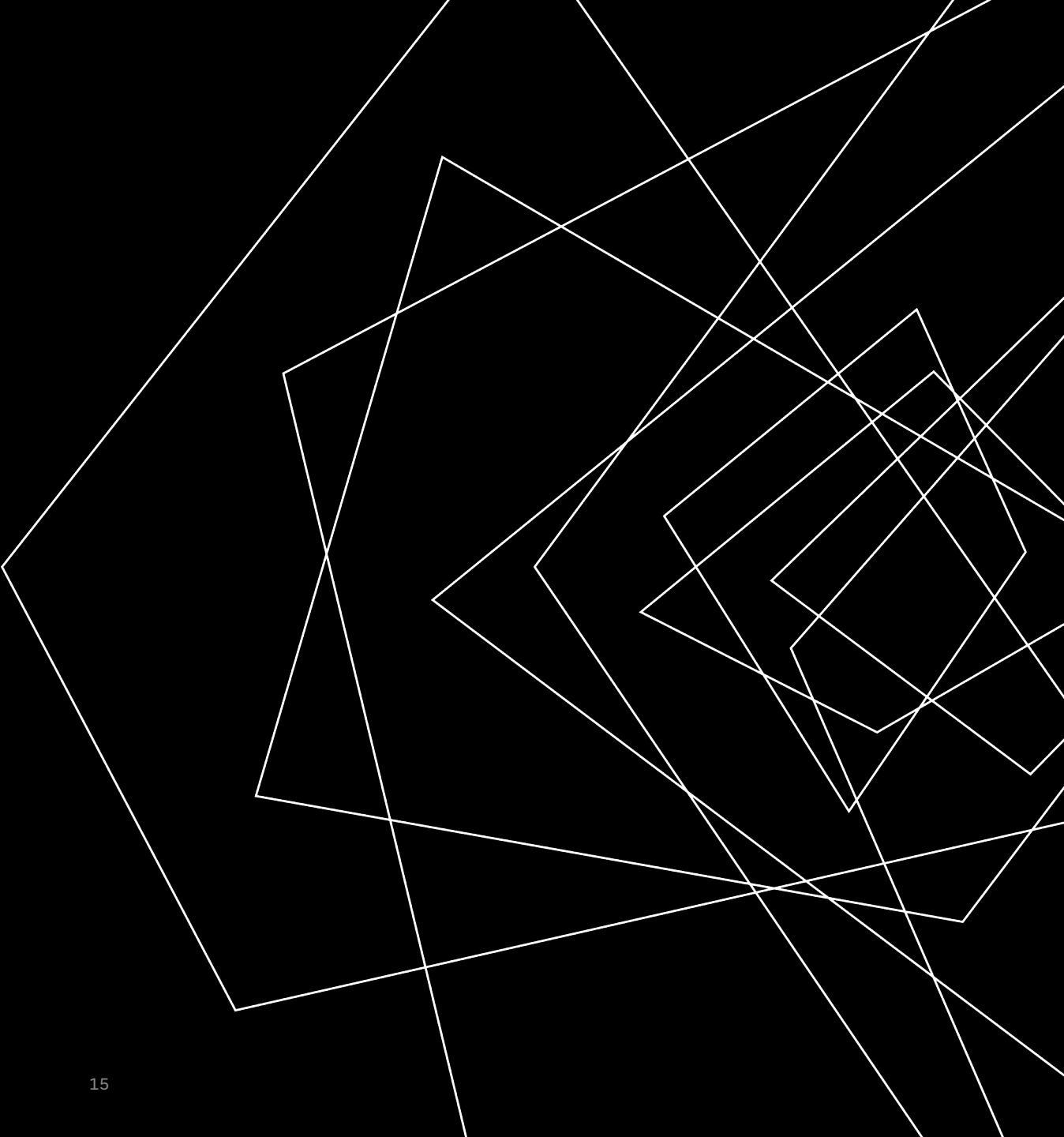
- Gearhead Music
- Boomwhacker® Manipulations
- Musical Saws

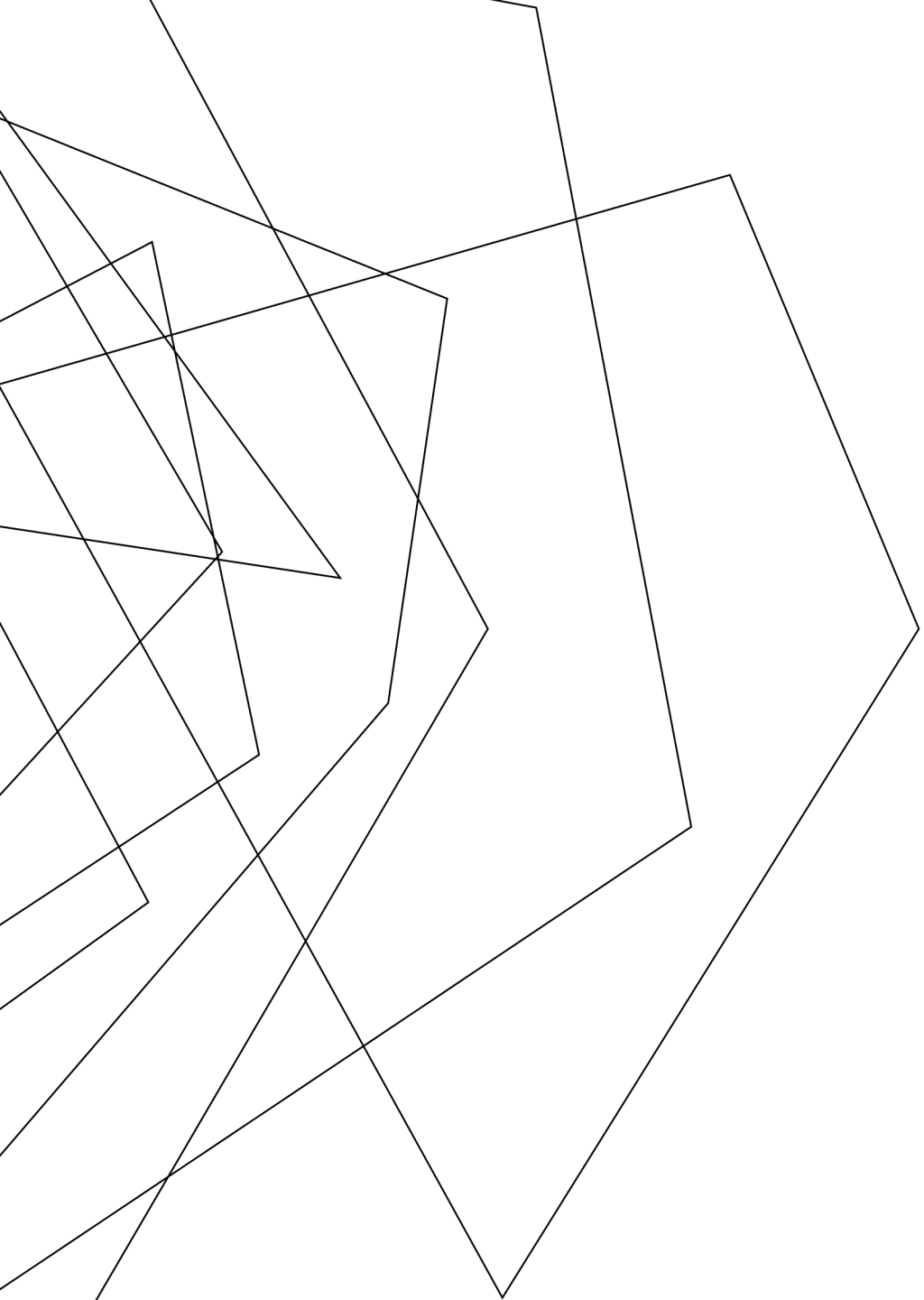




SUMMER TRAINING OPPORTUNITIES

Contact Dr. Mark @ <https://drmarkstemusic.com>





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THANK YOU

drmarkstemusic.com