MbF Geometry Curriculum- 3 Terms

Geometry 1: Introduction to Proofs and Lines

Week 1: Introduction

Concepts:

- Points, lines, planes, space,
- Collinear, coplanar

Activity: Video
https://www.khanacademy.org/math/geometry/hs-geo-transformations/hs-geo-intro-euclid/v/language-and-notation-of-basic-geometry

Optional Homework: https://www.mathworksheets4kids.com/plane/write-draw1.pdf
Worksheet

Week 2: Intro continued

Concepts:

- Segments
- Rays
- Segment addition postulate
- Midpoints

Activity: Review each concept,
Midpoint Worksheet:
https://cdn.kutasoftware.com/Worksheets/Geo/3-The%20Midpoint%20Formula.pdf

Optional Homework: Video
https://www.khanacademy.org/math/algebra-basics/alg-basics-equations-and-geometry/equations-geometry/v/segment-addition
Then do Khan Academy Practice: Equation Practice with Segment Addition

We would like to acknowledge and thank Ms. Epstein and their Geometry class for inspiration in this curriculum.

Week 3: Proofs

Concepts:

- What is a proof
- Types of proofs:
    - Conditional
    - Biconditional
- Practice writing proofs

Activity: https://www.math.fsu.edu/~pkirby/mad2104/SlideShow/s3_2.pdf

Optional Homework:
https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-geometry/cc-7th-angles/v/angle-basics

- Look up interesting proofs-can you find real examples of each type of proof?

Week 4: Angles

Concepts:

- Types of angles: acute, obtuse, right, straight
- How to measure angles
- Angle addition postulate
- Angle bisector

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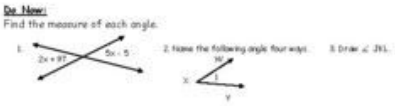
Optional Homework: Worksheet



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Week 5: Reasoning

Concepts:

- Inductive vs. deductive reasoning
- Conditional statements
- Nonexamples
- Practice writing proofs using midpoints and angles

Activity: https://calcworkshop.com/basic-geometry/inductive-reasoning/
https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/deductive-reasoning-1

Optional Homework: Complete this Khan Academy lesson
https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/deductive-reasoning-1
Worksheet:
https://www.ncps-k12.org/cms/lib/CT01903077/Centricity/Domain/670/Section%2028%20Proving%20Angle%20Relationships.pdf

Week 6: Useful Properties

Concepts:

- Reflexive Property
- Symmetric property
- Transitive property
- Addition Postulate, subtraction postulate, multiplication postulate, division postulate

Activity: https://www.murrieta.k12.ca.us/cms/lib5/ca01000508/centricity/domain/1830/t2.6.pdf

Optional Homework:
https://www.quia.com/files/quia/users/chrisheadlee/Geometry/CH2/AlgProofWS.pdf

Week 7: Using Properties in Proofs

Concepts:

- Review properties

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- Practice writing proofs using properties
- Practice identifying properties in proofs

Activity: practice writing proofs, give students proof and have them add column labelling each property

Optional homework: https://www.youtube.com/watch?v=OFbIt3uthy0

Week 8: Bisectors and angles

Concepts:

- Complementary angles
- Supplementary angles
- Congruent angles, Complements of the same angle are congruent
- Medians, altitudes
- Perpendicular bisector, perpendicular bisector theorem

Activity:

https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-bisectors/v/geometric-constructions-congruent-angles

https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-bisectors/v/constructing-a-perpendicular-bisector-using-a-compass-and-straightedge

Optional Homework:

https://www.ixl.com/math/geometry/identify-medians-altitudes-angle-bisectors-and-perpendicular-bisectors

Week 9: Parallel Lines

Concepts:

- Definition of parallel lines
- Proving lines are parallel
- Given lines are parallel…

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Optional Homework:

https://mathbitsnotebook.com/Geometry/ParallelPerp/PPparallelProofs.html

Week 10: Perpendicular Lines

Concepts:

- Definition of perpendicular lines
- Perpendicular lines theorems:
    - Linear pair perpendicular lines theorem
    - Perpendicular transversal theorem and inverse

Activity:

https://www.murrieta.k12.ca.us/cms/lib5/CA01000508/Centricity/Domain/1830/T3.2.pdf

Optional Homework: Complete this Khan Academy Module

https://www.khanacademy.org/math/basic-geo/basic-geo-lines/parallel-perp/v/parallel-and-perpendicular-lines-intro

Week 11: Vertical angles and Transversals

Concepts:

- Vertical angles
- Vertical Angle theorem
- Transversals
    - alternate interior angles
    - same-side interior angles
    - corresponding angles
    - alternate exterior angles
    - same-side exterior angles

Activity:

https://www.mathplanet.com/education/geometry/perpendicular-and-parallel/angles-parallel-lines-and-transversals

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Worksheet-
https://www.ncps-k12.org/cms/lib/CT01903077/Centricity/Domain/670/Worksheet%20Section%2032%20Angles%20and%20Parallel%20Lines.pdf

Optional homework:
https://www.khanacademy.org/math/basic-geo/basic-geo-angle/vert-comp-supp-angles/a/vertical-angles-review

Week 12: Review

Review parallel, perpendicular lines, transversals, vertical angles

Activity for review:
https://www.ixl.com/math/geometry/transversals-of-parallel-lines-find-angle-measures

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Resources

- https://www.khanacademy.org/math/geometry/hs-geo-transformations/hs-geo-intro-euclid/v/language-and-notation-of-basic-geometry
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- https://calcworkshop.com/basic-geometry/inductive-reasoning/
- https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/deductive-reasoning-1
- https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/deductive-reasoning-1
- https://www.ncps-k12.org/cms/lib/CT01903077/Centricity/Domain/670/Section%2028%20Proving%20Angle%20Relationships.pdf
- https://www.murrieta.k12.ca.us/cms/lib5/ca01000508/centricity/domain/1830/t2.6.pdf
- https://www.quia.com/files/quia/users/chrisheadlee/Geometry/CH2/AlgProofWS.pdf
- https://www.youtube.com/watch?v=OFbIt3uthy0
- https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-bisectors/v/geometric-constructions-congruent-angles
- https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-bisectors/v/constructing-a-perpendicular-bisector-using-a-compass-and-straightedge
- https://www.ixl.com/math/geometry/identify-medians-altitudes-angle-bisectors-and-perpendicular-bisectors
- https://mathbitsnotebook.com/Geometry/ParallelPerp/PPparallelProofs.html
- https://www.murrieta.k12.ca.us/cms/lib5/CA01000508/Centricity/Domain/1830/T3.2.pdf
- https://www.khanacademy.org/math/basic-geo/basic-geo-lines/parallel-perp/v/parallel-and-perpendicular-lines-intro
- https://www.mathplanet.com/education/geometry/perpendicular-and-parallel/angles-parallel-lines-and-transversals
- https://www.ncps-k12.org/cms/lib/CT01903077/Centricity/Domain/670/Worksheet%20Section%2032%20Angles%20and%20Parallel%20Lines.pdf
- https://www.khanacademy.org/math/basic-geo/basic-geo-angle/vert-comp-supp-angles/a/vertical-angles-review
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