

MATH 121 (Day 2)  
**Why the Tracks Converge**

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**Why do the tracks converge?**



**Why do the tracks converge?** Answer involves six simple facts



# 1. Light rays travel in straight lines



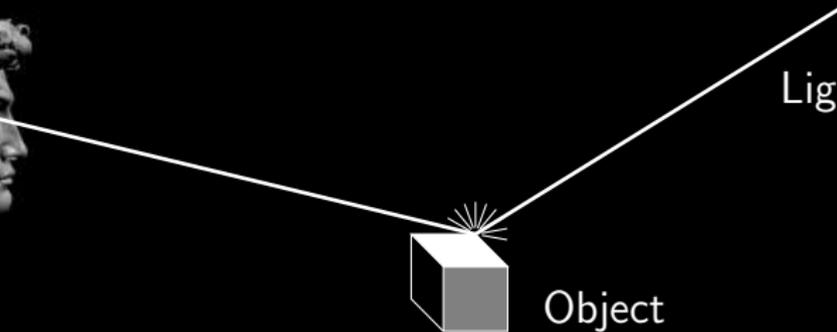
Viewer



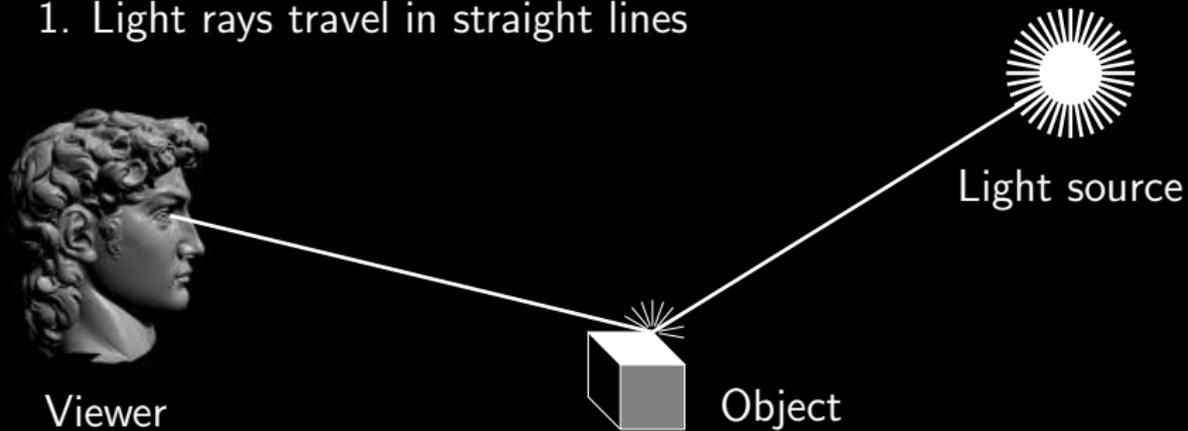
Object



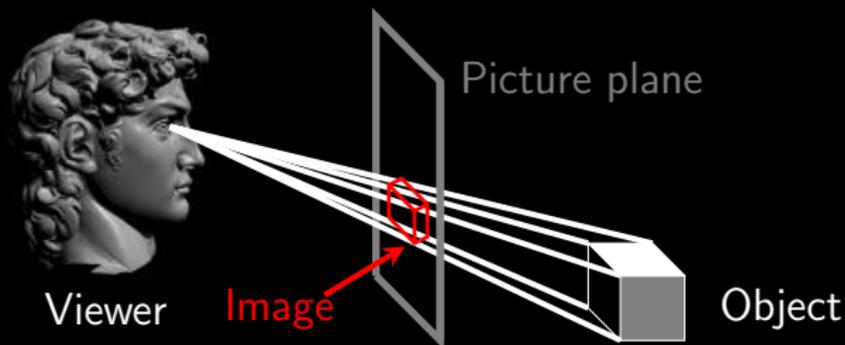
Light source



1. Light rays travel in straight lines



2. Light rays from object to viewer intersect picture plane to form image.



3. If you look at a line straight on, you see...



3. If you look at a line straight on, you see...



...a point: •

3. If you look at a line straight on, you see...



...a point: •

4. If you look at a plane straight on, you see...



3. If you look at a line straight on, you see...



...a point: •

4. If you look at a plane straight on, you see...

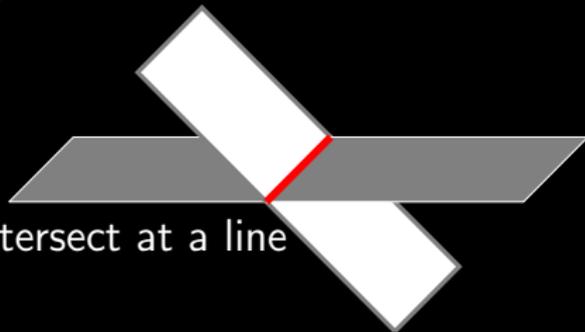


...a line: \_\_\_\_\_

5. Any two planes in 3-D space are either parallel or they intersect at a line.



parrallel

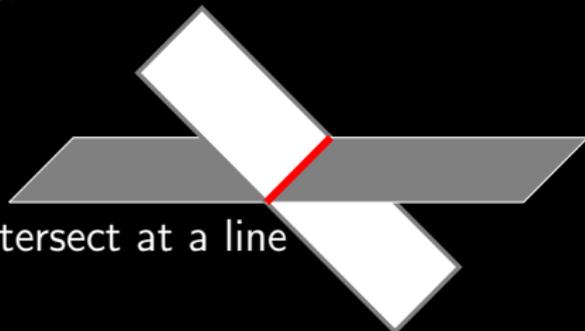


intersect at a line

5. Any two planes in 3-D space are either parallel or they intersect at a line.



parallel



intersect at a line

6. A line and a point in 3-D space determine a plane.

point



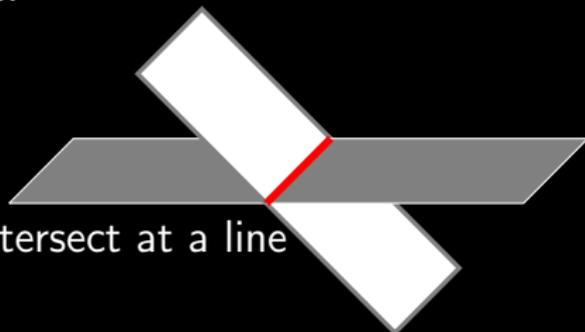
line



5. Any two planes in 3-D space are either parallel or they intersect at a line.

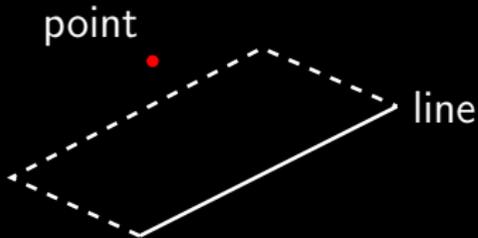


parallel



intersect at a line

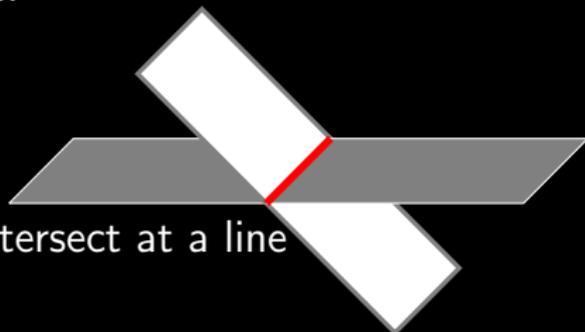
6. A line and a point in 3-D space determine a plane.



5. Any two planes in 3-D space are either parallel or they intersect at a line.

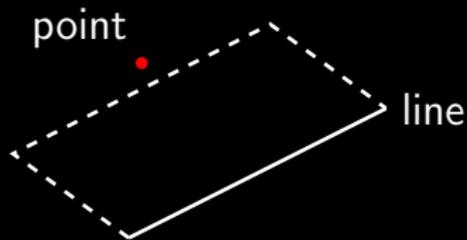


parallel



intersect at a line

6. A line and a point in 3-D space determine a plane.



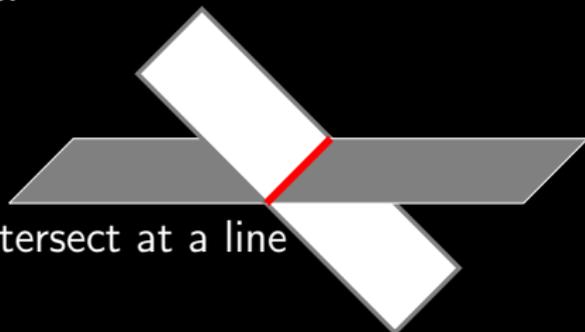
point

line

5. Any two planes in 3-D space are either parallel or they intersect at a line.

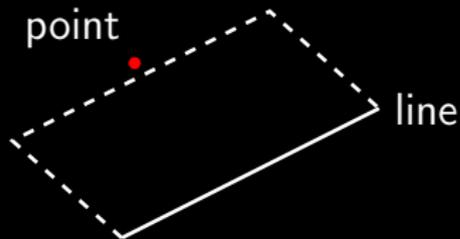


parallel



intersect at a line

6. A line and a point in 3-D space determine a plane.



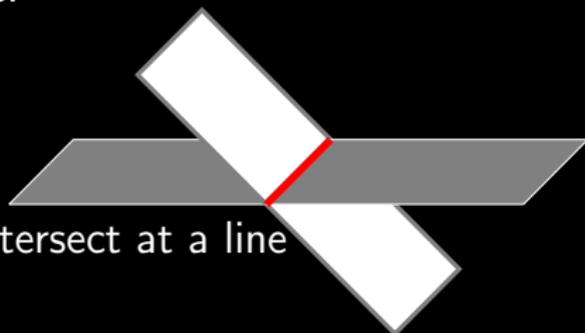
point

line

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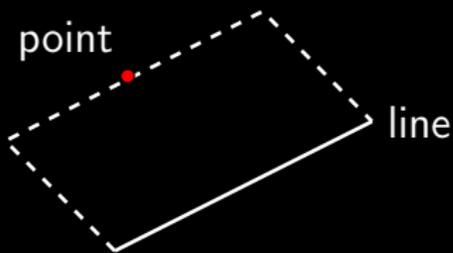


parallel



intersect at a line

6. A line and a point in 3-D space determine a plane.



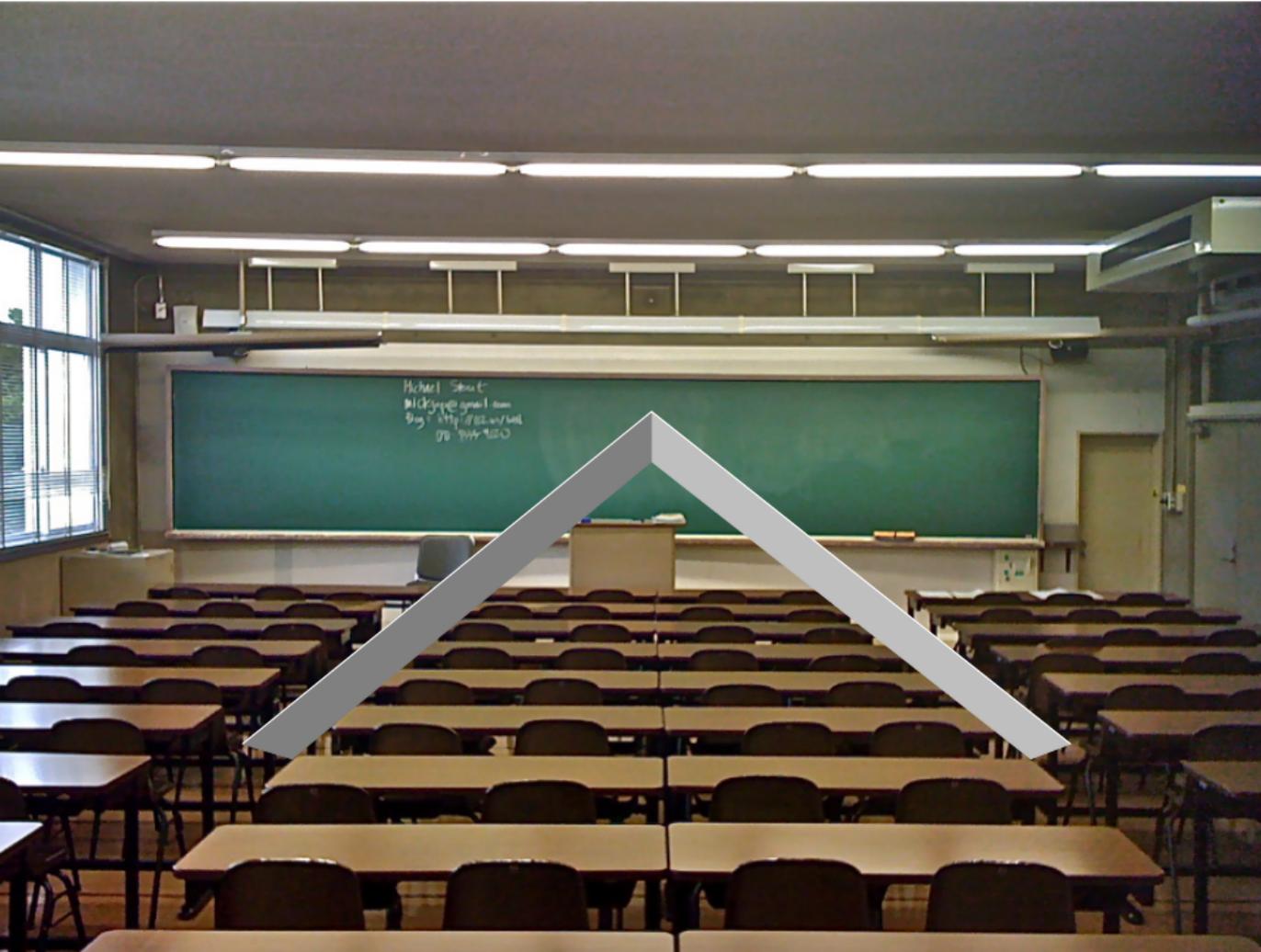
point

line

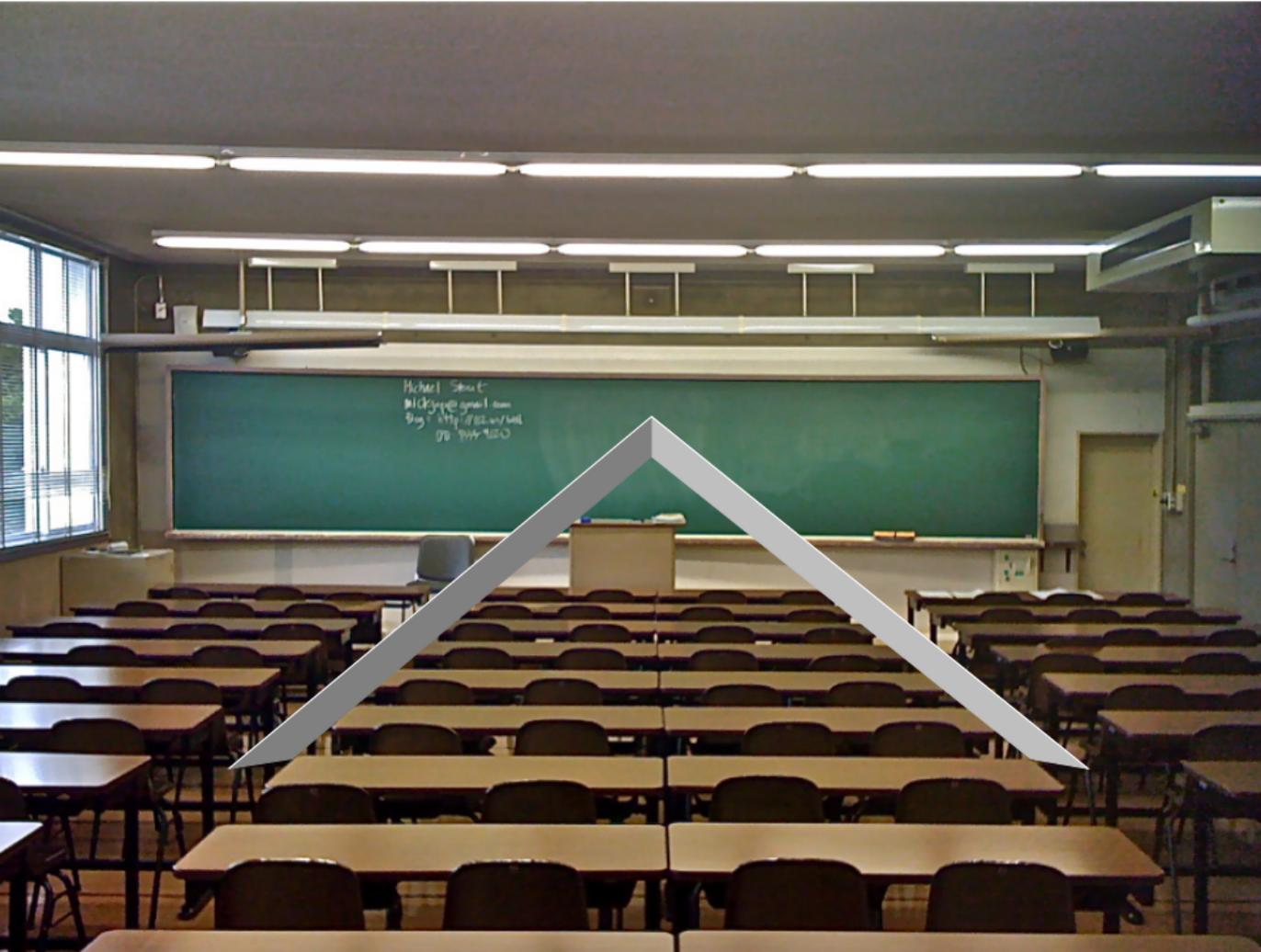




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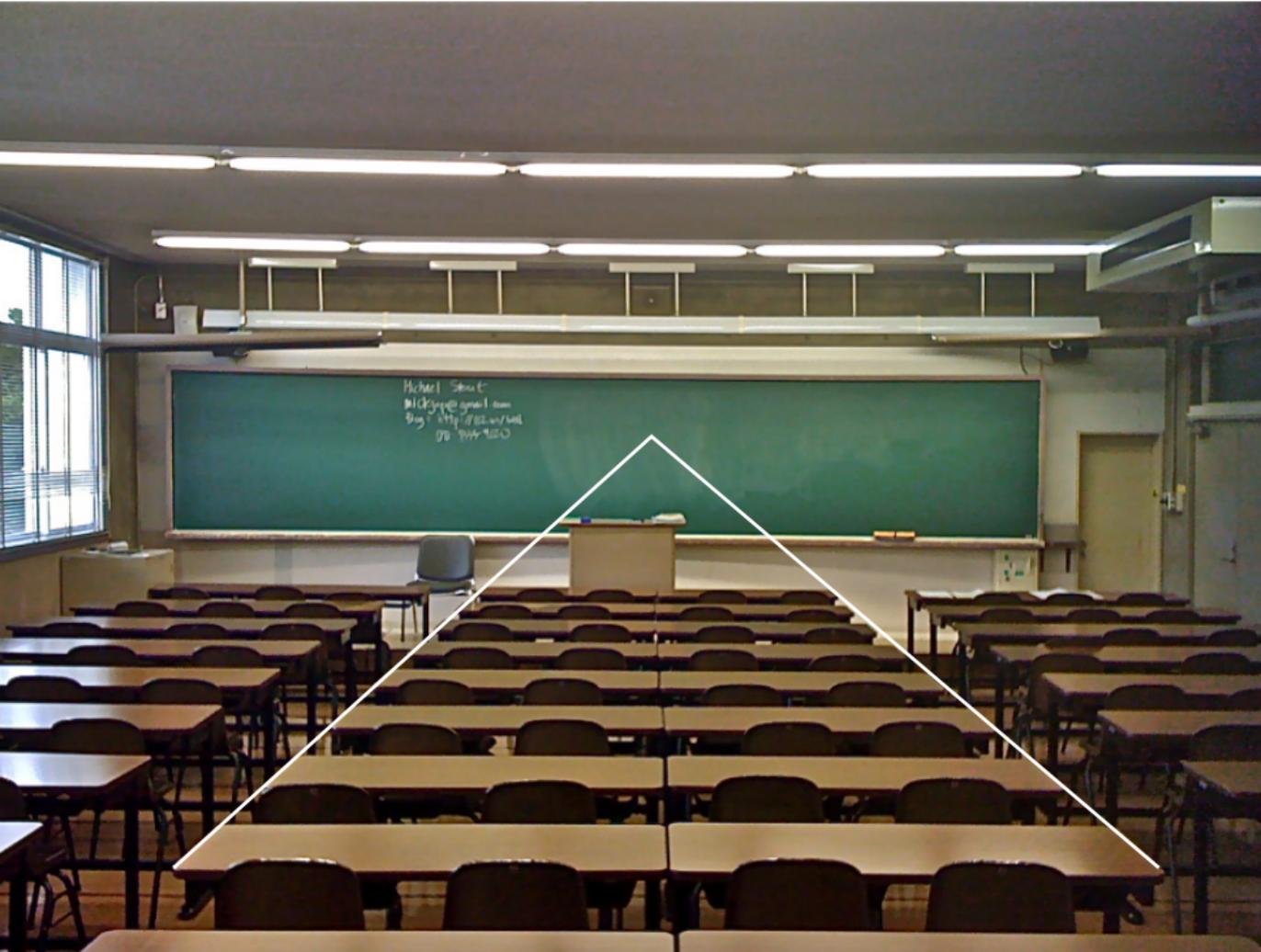
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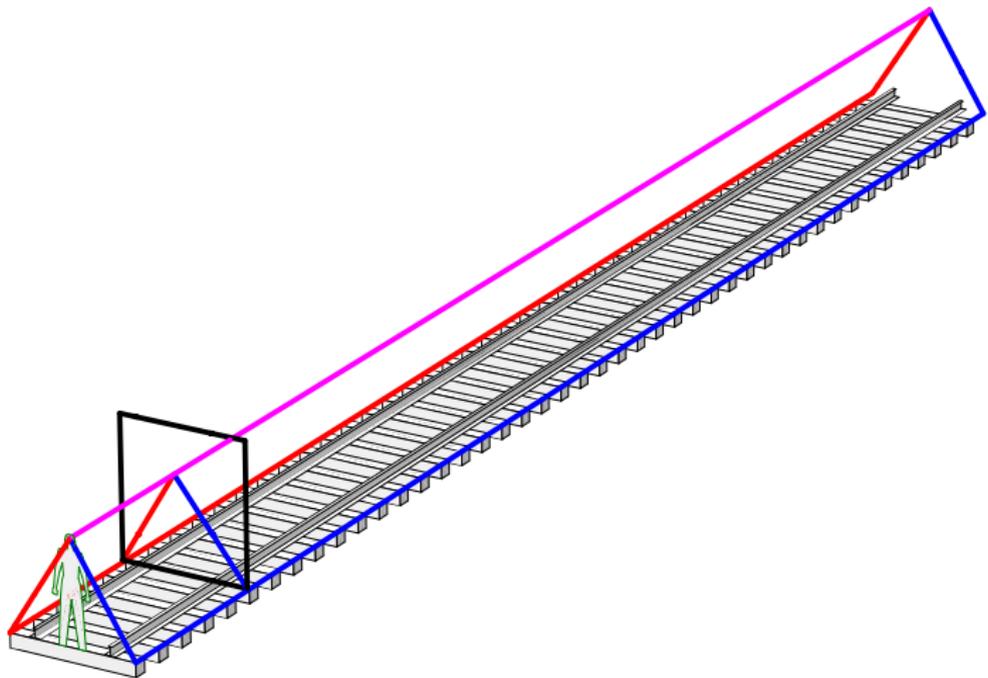
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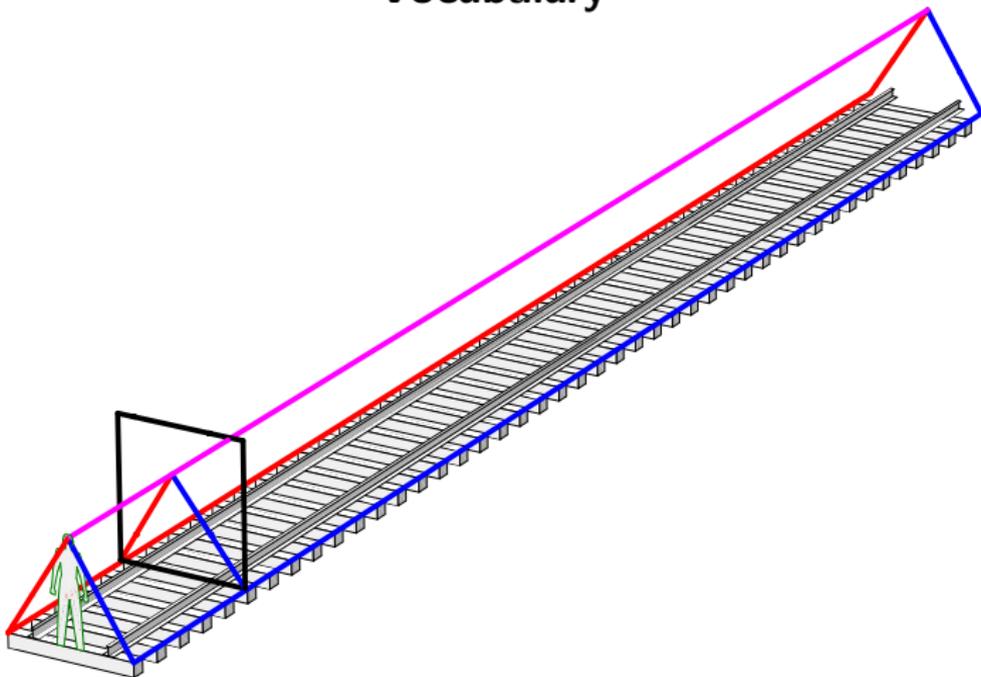






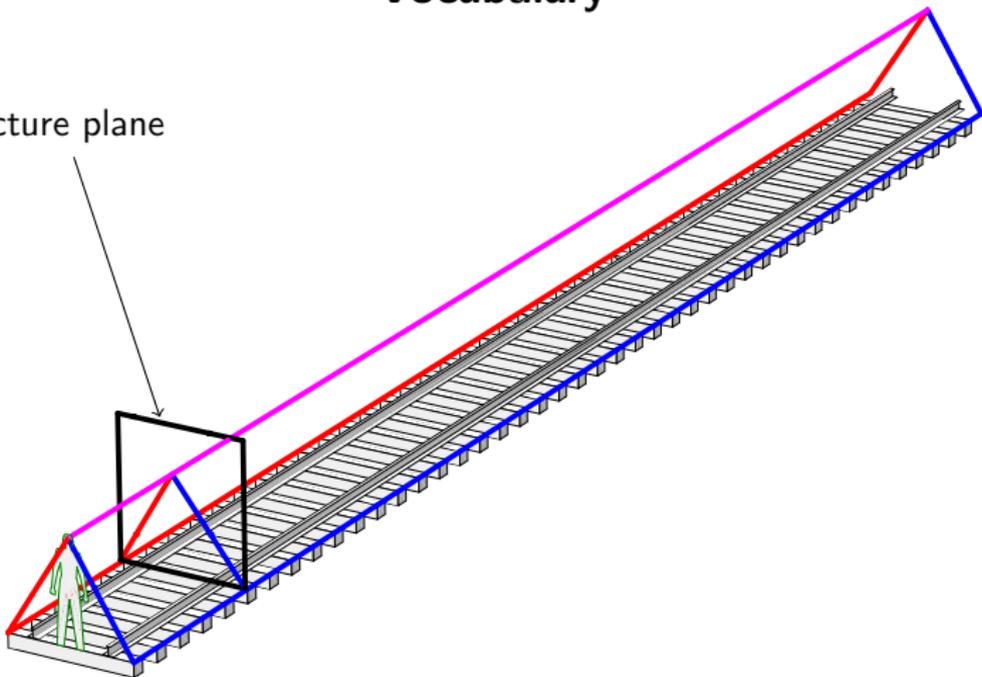


# Vocabulary



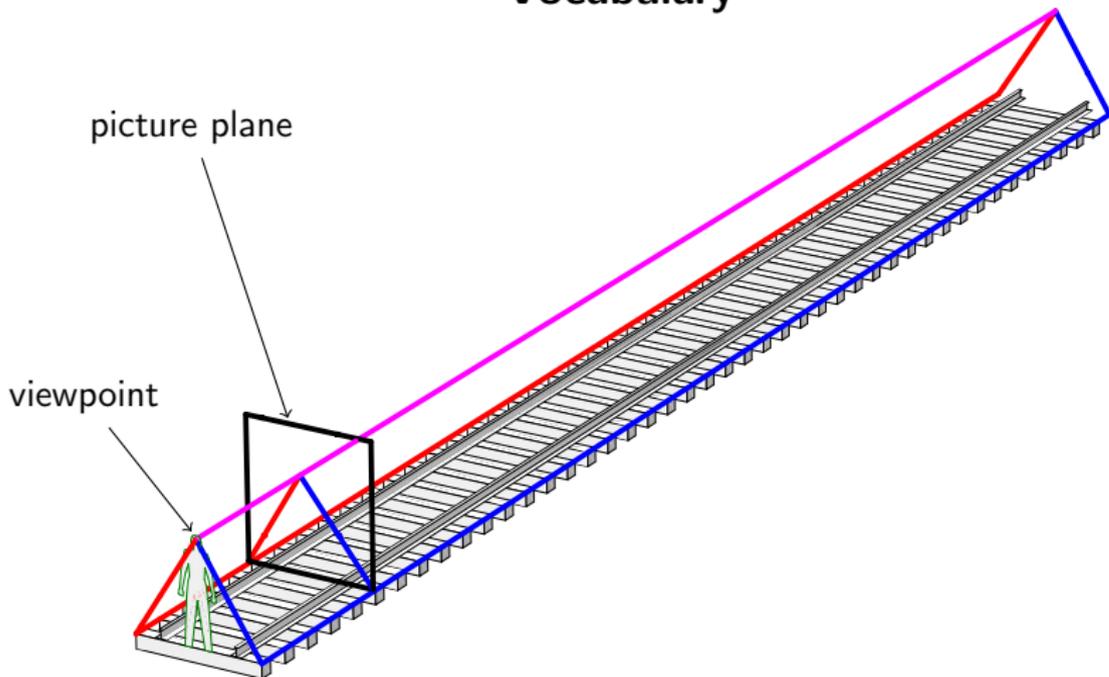
## Vocabulary

picture plane



**Picture plane:** imaginary “window” or “transparency” that scene is drawn on.

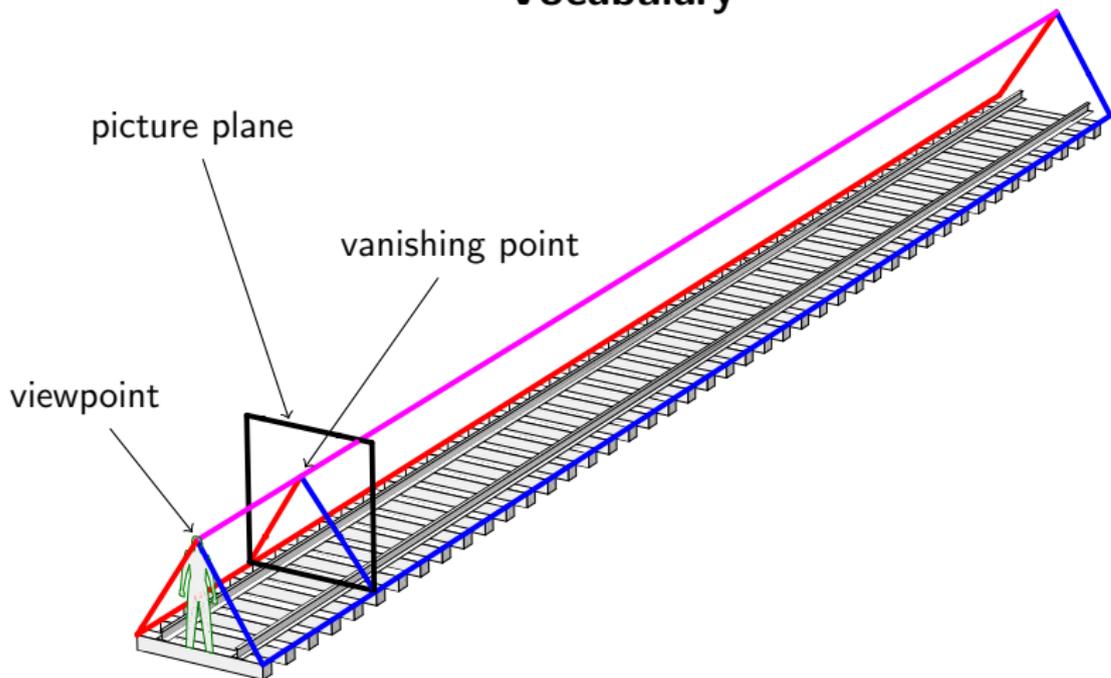
## Vocabulary



**Picture plane:** imaginary “window” or “transparency” that scene is drawn on.

**Viewpoint:** Location of viewer’s eye.

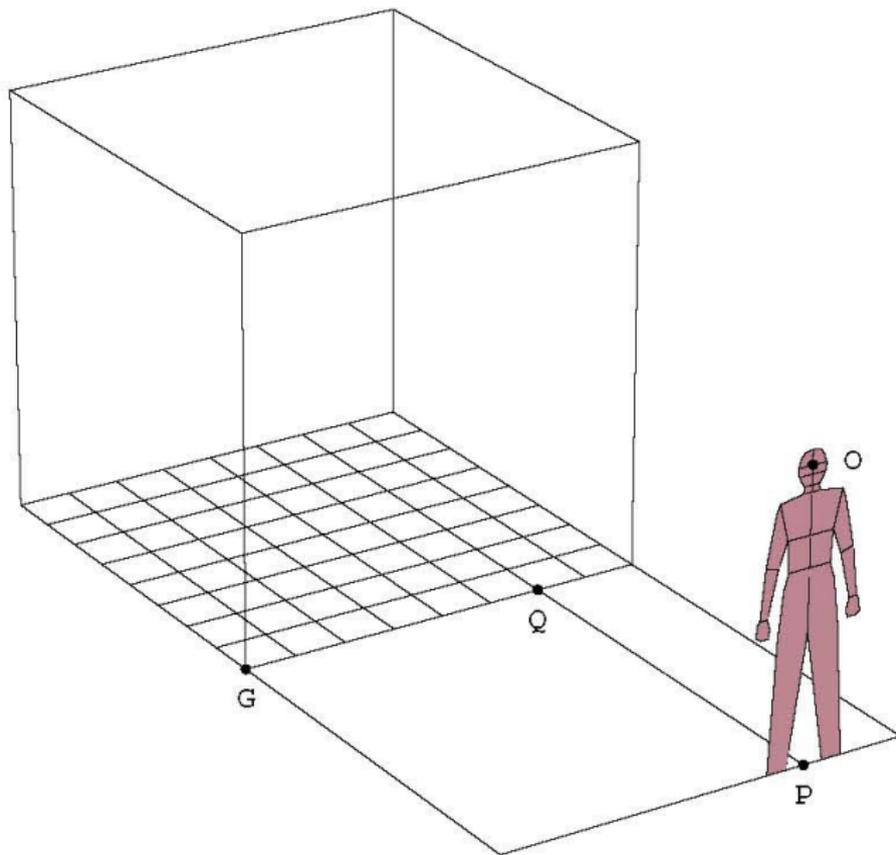
# Vocabulary

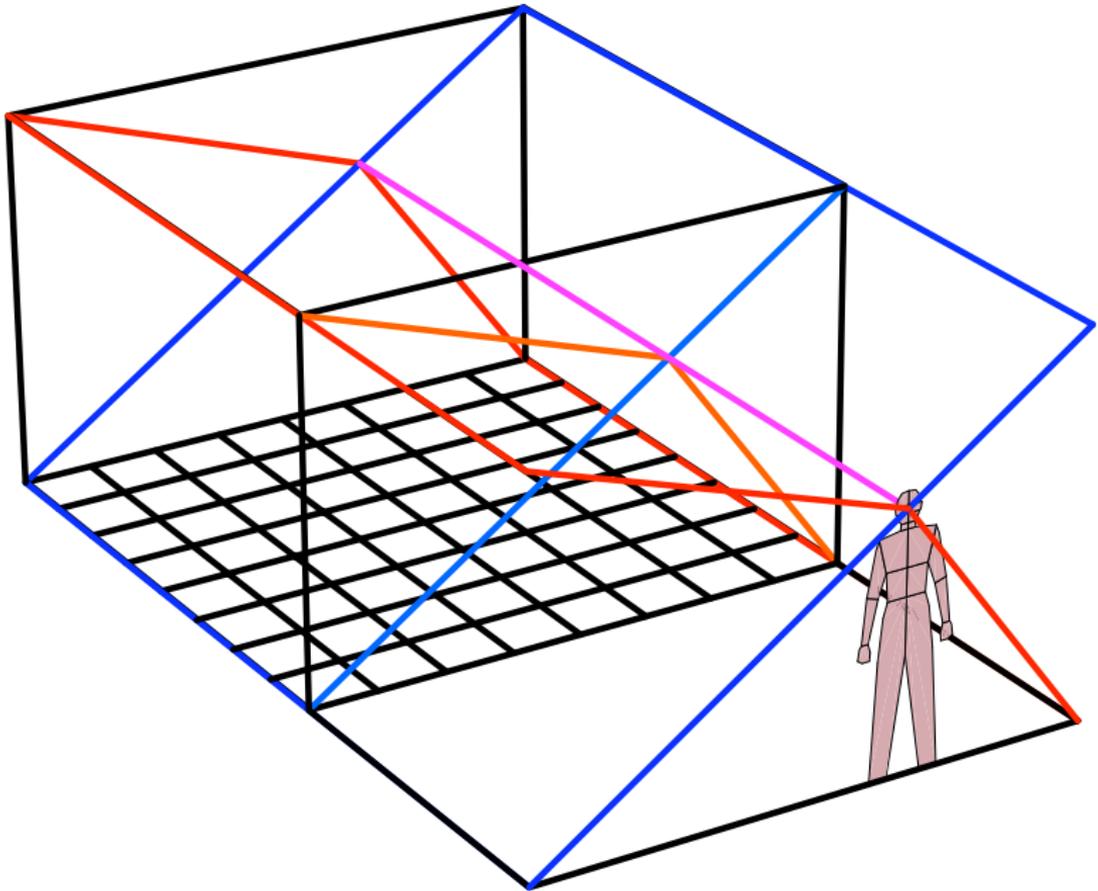


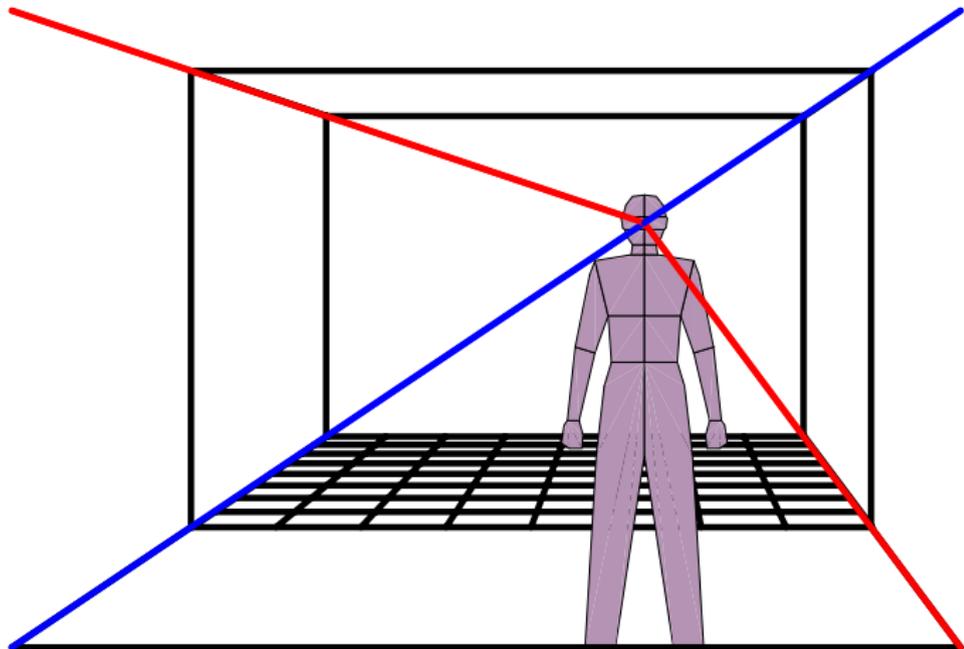
**Picture plane:** imaginary “window” or “transparency” that scene is drawn on.

**Viewpoint:** Location of viewer’s eye.

**Vanishing point:** Point on picture plane that parallel lines appear to converge to.







Next Time: [www.people.vcu.edu/~rhammack/Math121/](http://www.people.vcu.edu/~rhammack/Math121/)