



Graphing Linear Inequalities

Section 6.8

EVERYONE GET A
COMMUNICATOR!!!
One side blank, other
side graph

How to Determine the Type of Line to Draw

Inequality Symbol	Type of Line
$>$ or $<$	Dotted Line 
<u>$>$</u> or <u>$<$</u>	Solid Line 



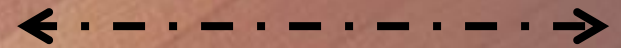
Choose the type of line for the inequality given.

1. $y \geq 3x - 2$

a. Solid



b. Dotted

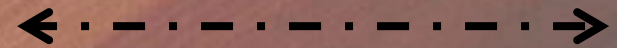


2. $y > \frac{1}{4}x - 5$

a. Solid



b. Dotted



Choose the inequality symbol for the line shown.

\leq or \geq

$<$ or $>$



NO 2 HB



Choose the inequality symbol for the line shown.

\leq or \geq

$<$ or $>$



NO 2 HB



If the
inequality is:

Shade

$$y > mx + b$$

or

$$y \geq mx + b$$

Above the
line

$$y < mx + b$$

or

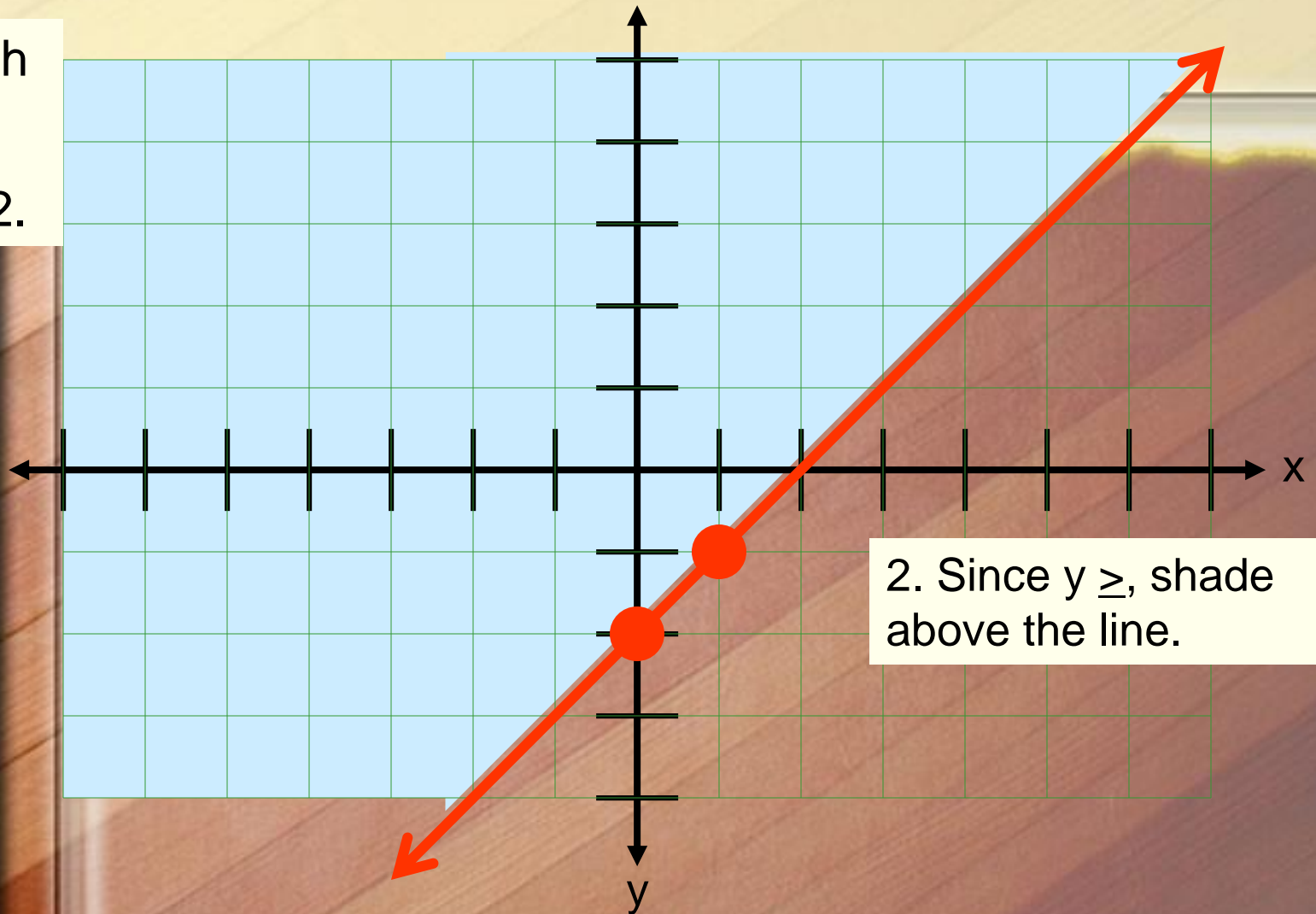
$$y \leq mx + b$$

Below the line

Graph $y \geq x - 2$.

1. Graph the line

$$y = x - 2.$$



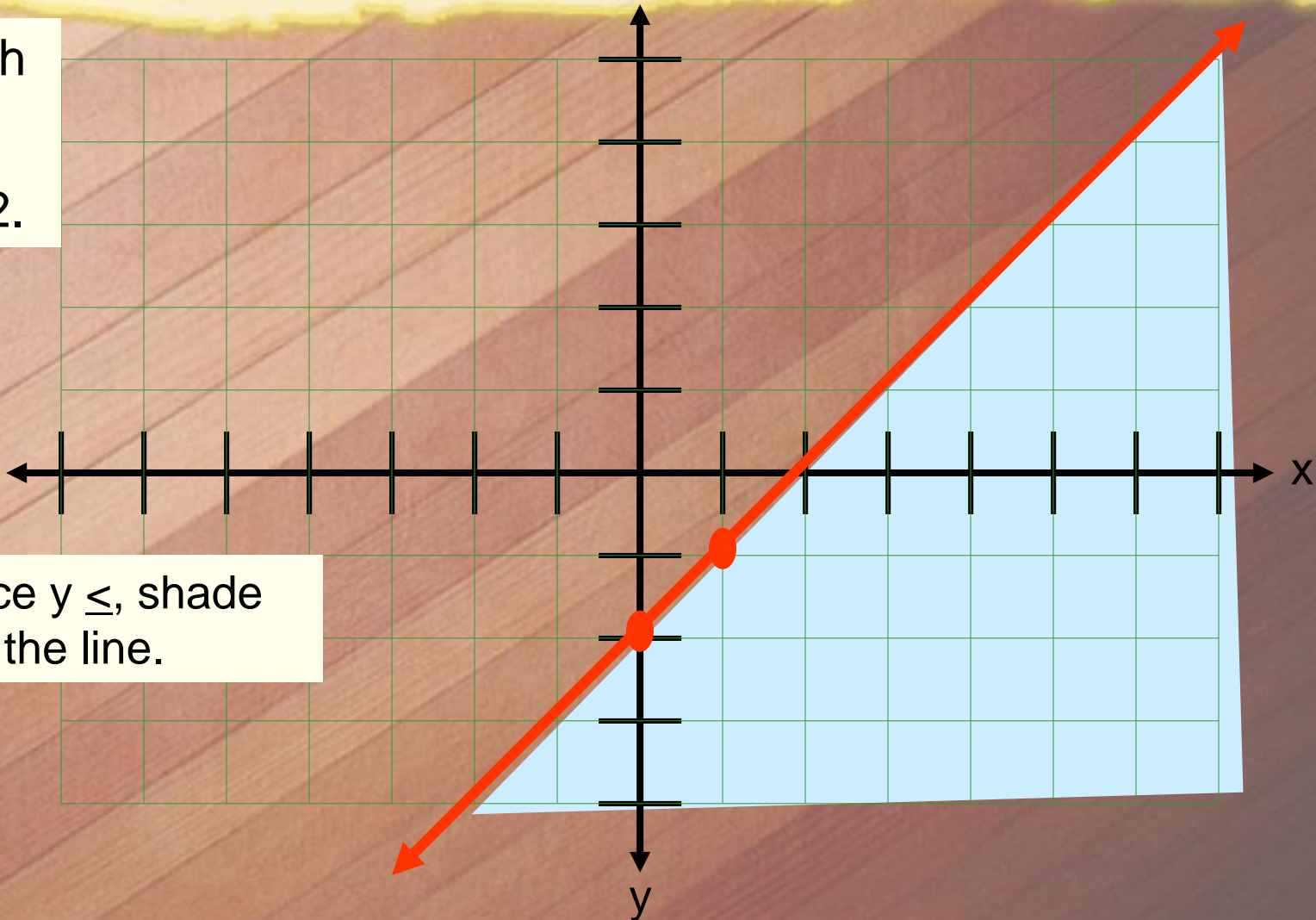
2. Since $y \geq$, shade above the line.

Graph $y \leq x - 2$.

1. Graph
the line

$$y = x - 2.$$

2. Since $y \leq$, shade
below the line.





If i only
had a ~~brain~~
brain.

Do you do
anything
different when
the line is dotted
rather than
solid?

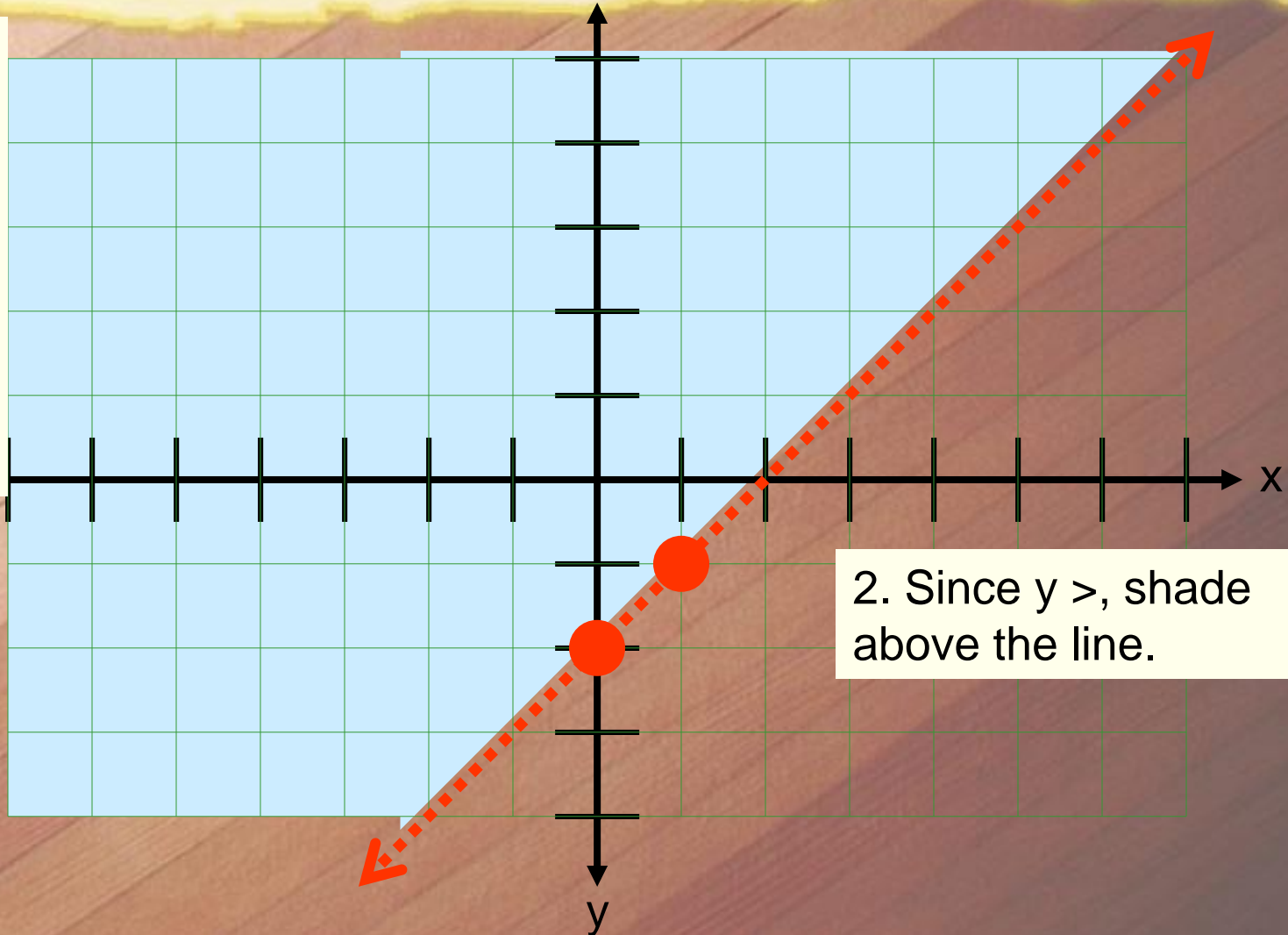


Not Ready

Graph $y > x - 2$.

1. Graph the line

$y = x - 2$,
but make
the line
dotted.



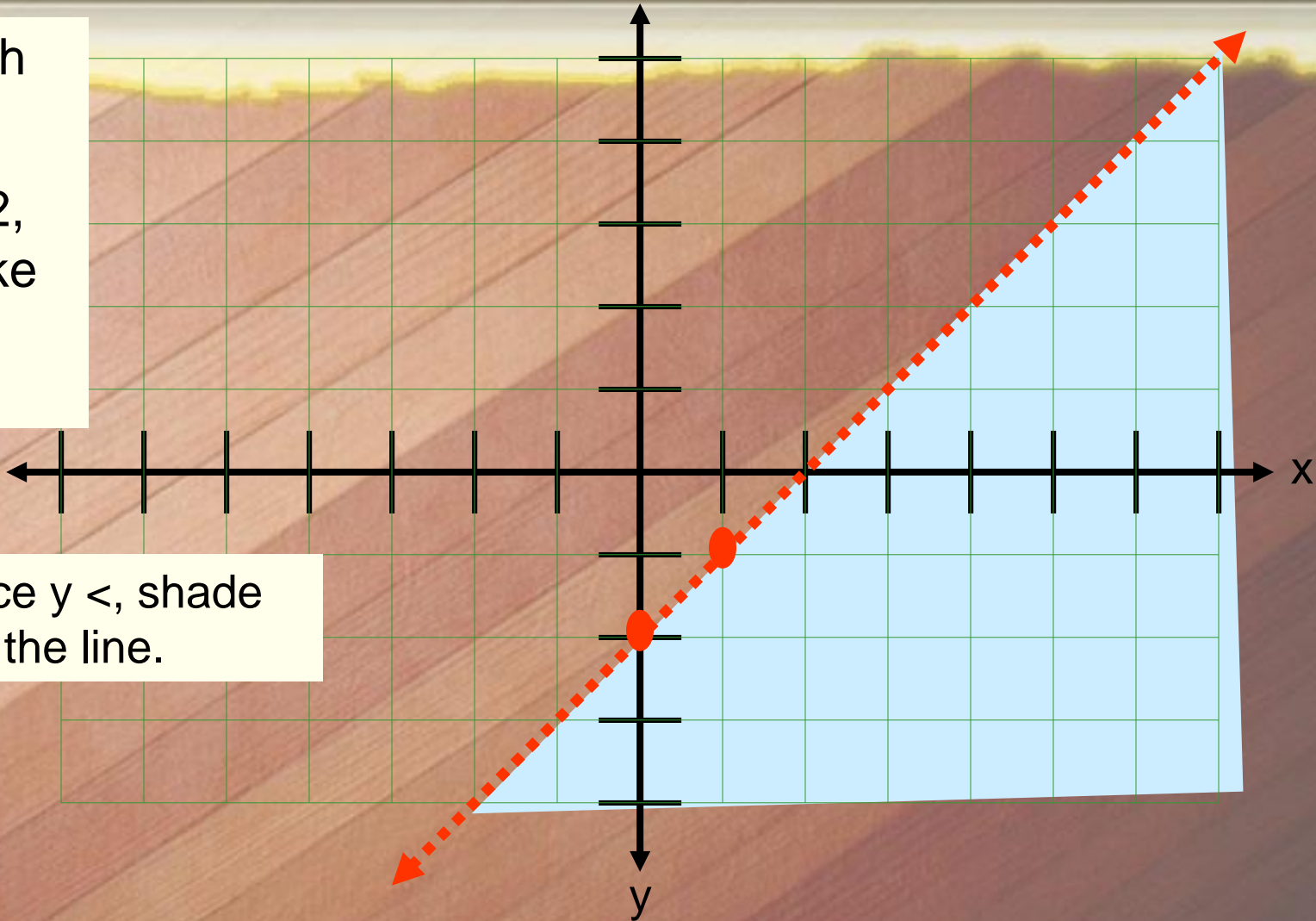
2. Since $y >$, shade
above the line.

Graph $y < x - 2$.

1. Graph the line

$y = x - 2$,
but make
the line
dotted.

2. Since $y <$, shade
below the line.

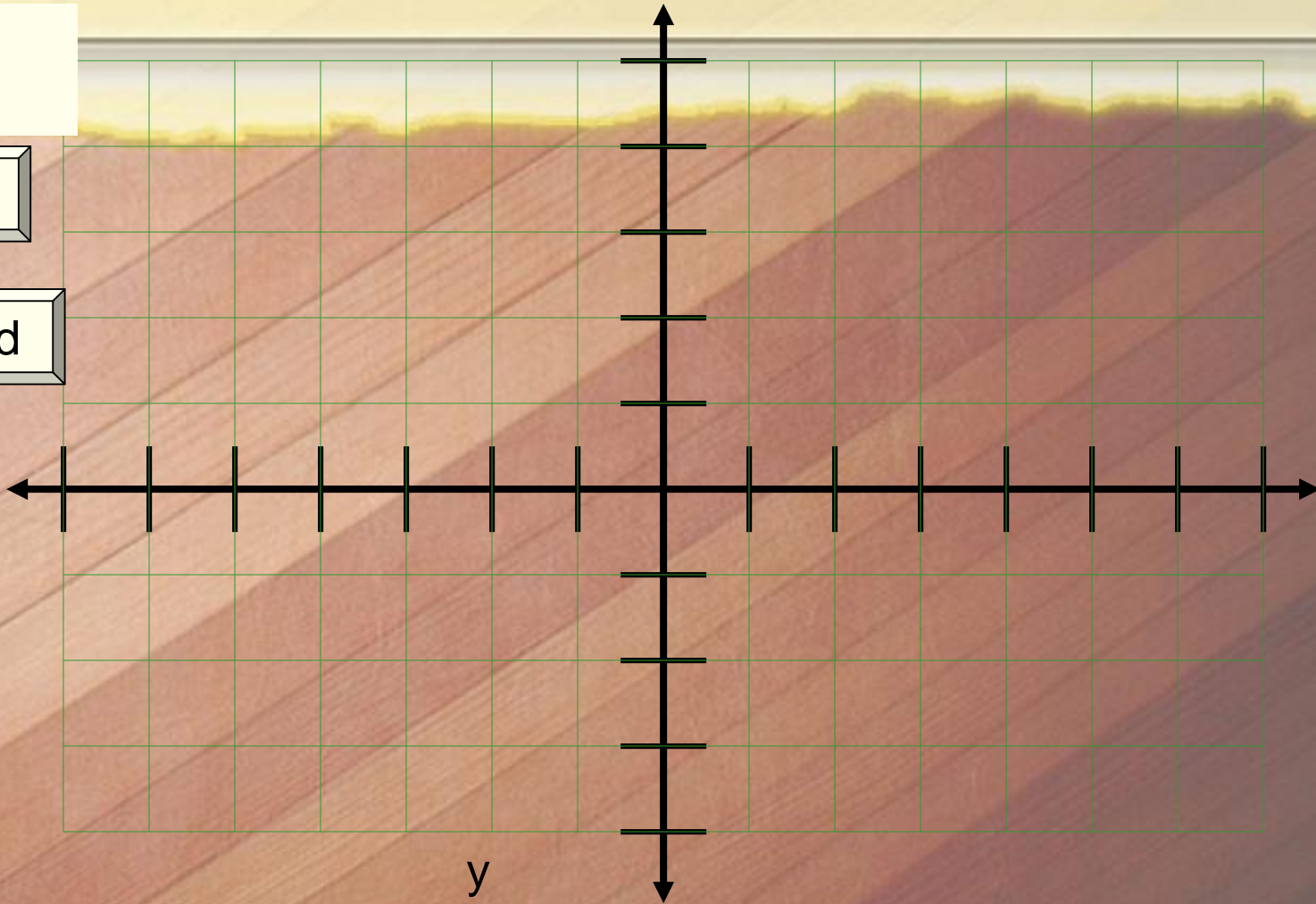


Graph $y > -\frac{1}{2}x + 3$

Type of
line:

Solid

Dotted



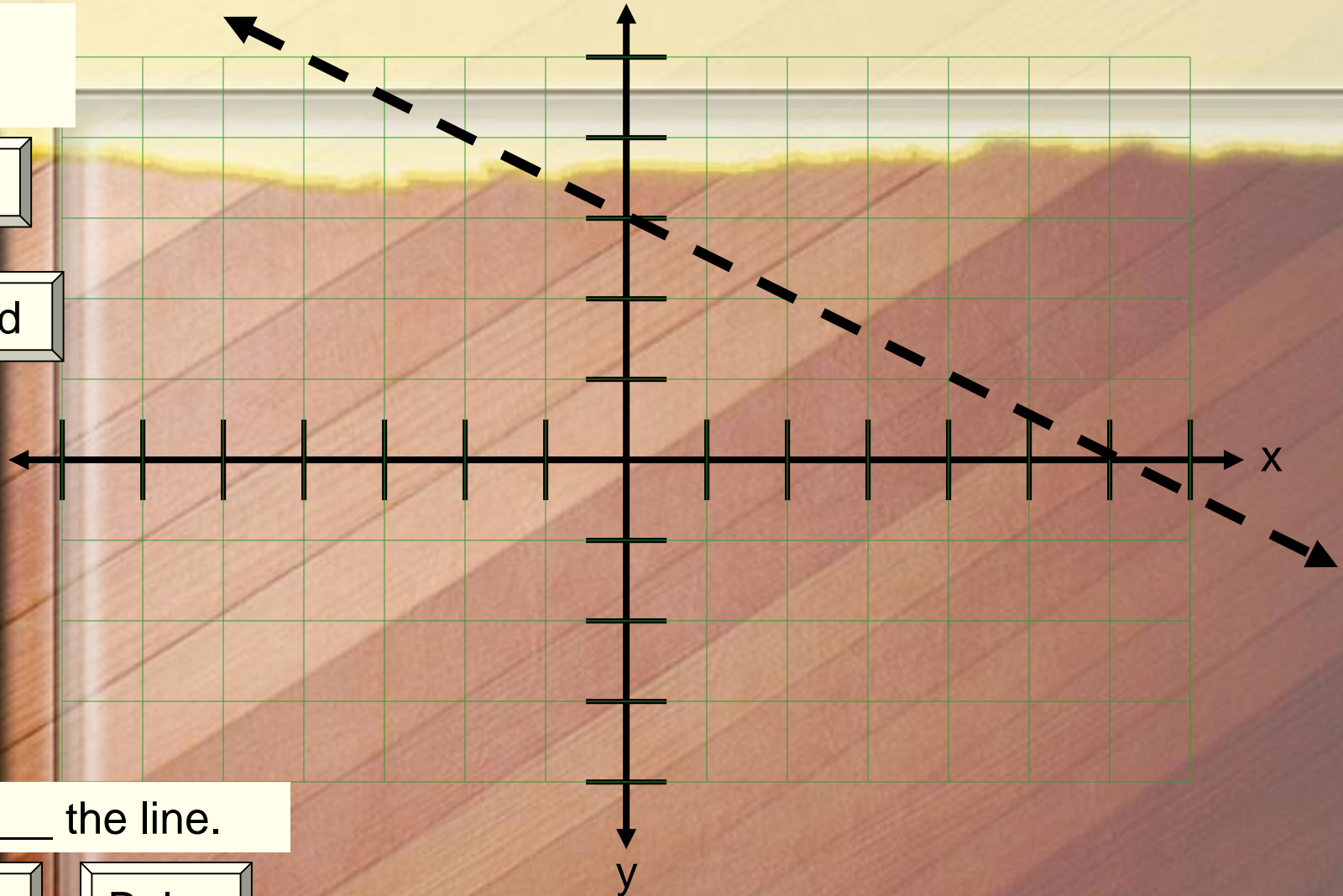
NO 2 HB

Graph $y > -\frac{1}{2}x + 3$

Type of line:

Solid

Dotted



Shade ___ the line.

Above

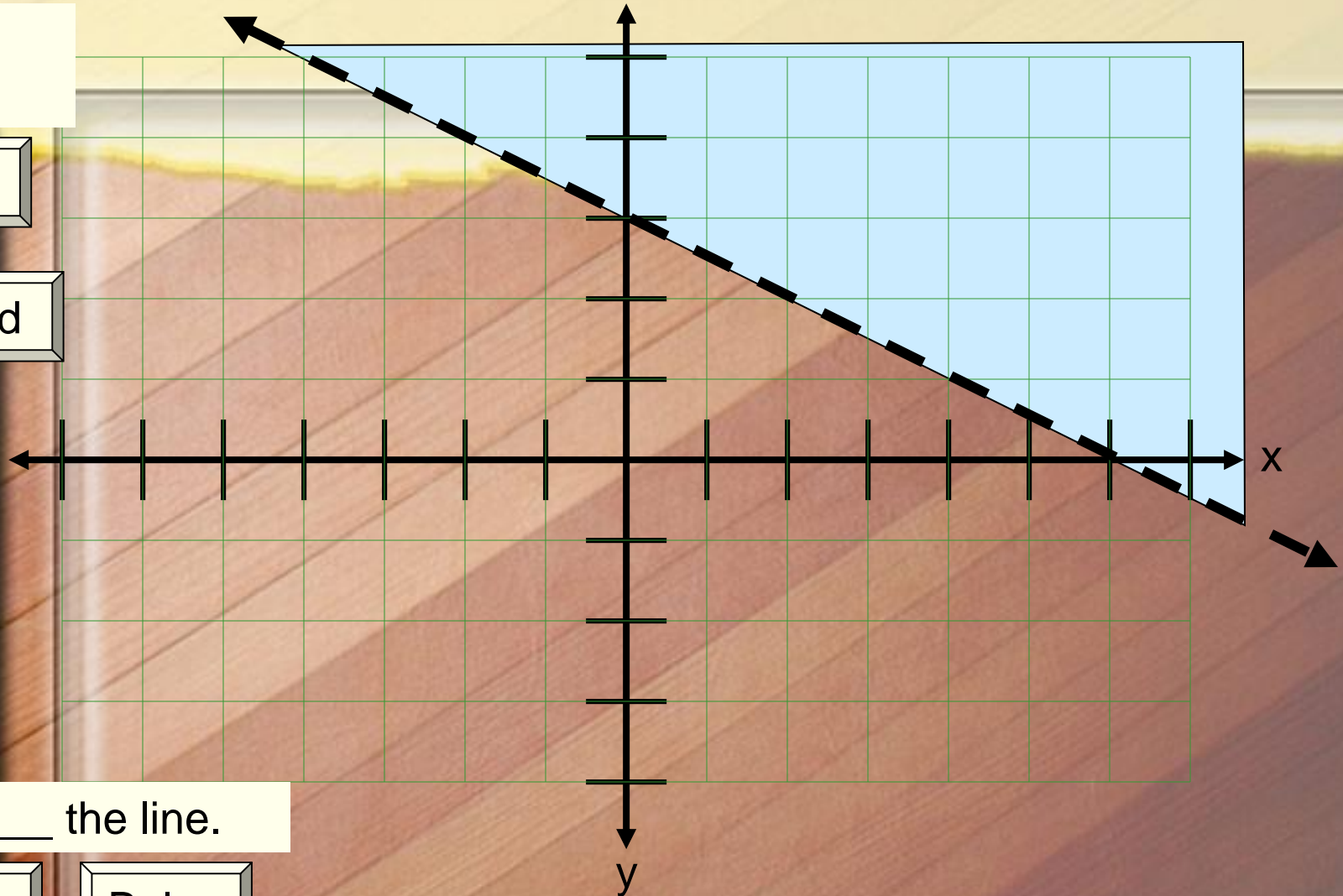
Below

Graph $y > -\frac{1}{2}x + 3$

Type of line:

Solid

Dotted

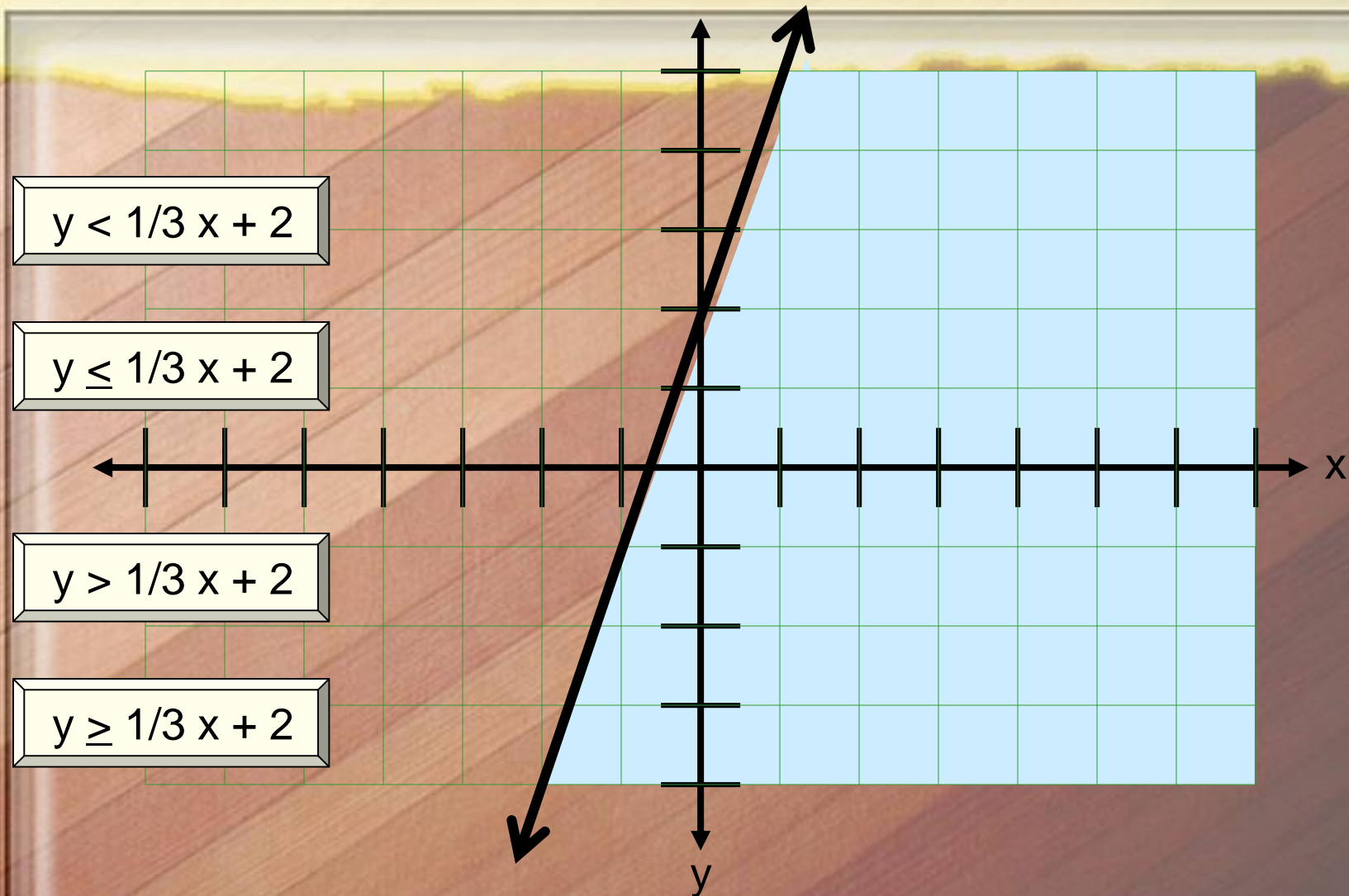


Shade ___ the line.

Above

Below

Choose the correct inequality for the graph shown.



$$y < \frac{1}{3}x + 2$$

$$y \leq \frac{1}{3}x + 2$$

$$y > \frac{1}{3}x + 2$$

$$y \geq \frac{1}{3}x + 2$$

NO 2 HB

Where to Shade for Undefined or No Slopes:

The inequality must be in

$x \text{ } \text{💣} \text{ } \# \text{ (no } y \text{)}$

format.

💣 can be:

$>$, \geq , $<$, or \leq .



If the
inequality is:

Shade
To the

$$x > \#$$

or

$$x \geq \#$$

Right of the
line

$$x < \#$$

or

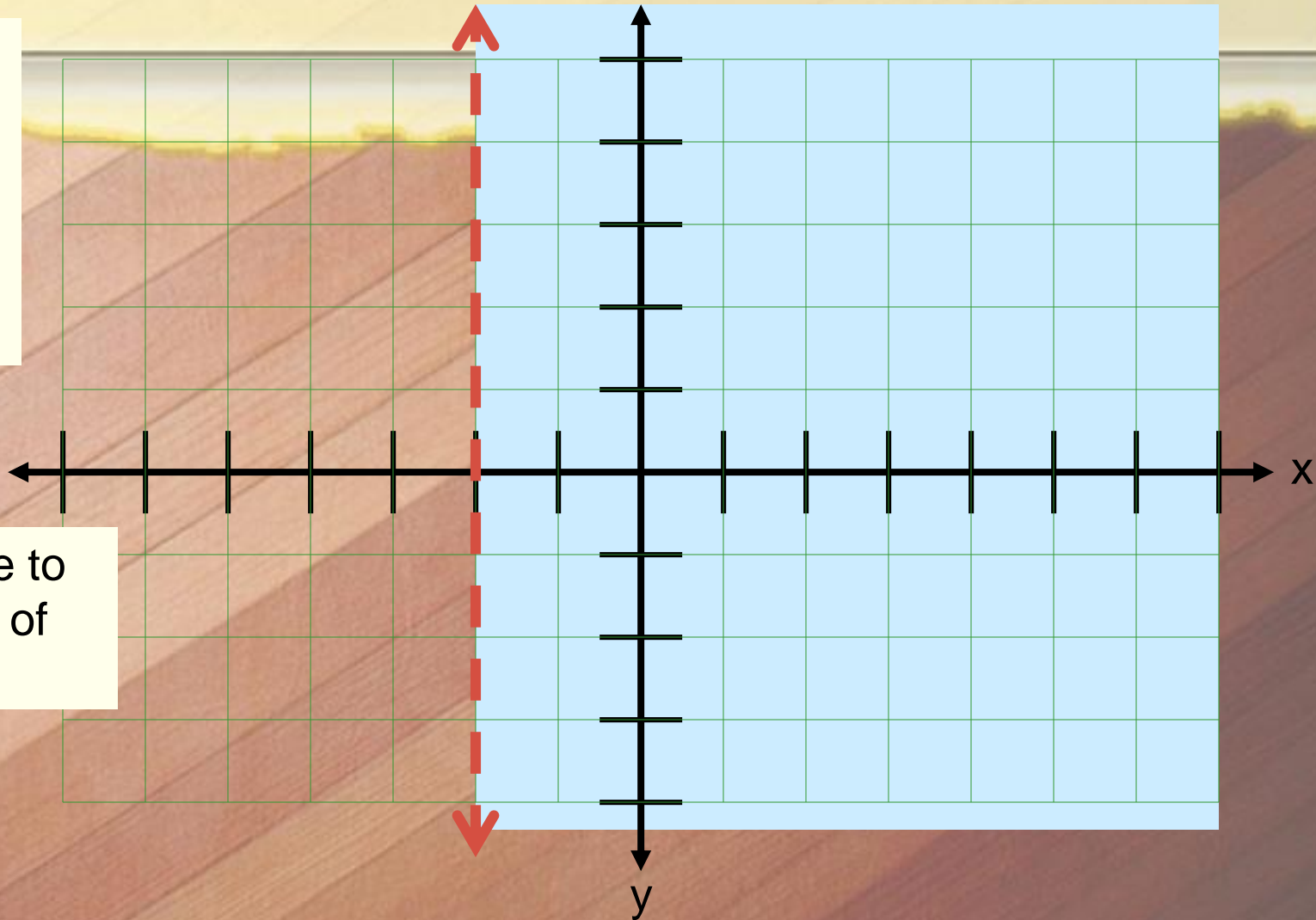
$$x \leq \#$$

Left of the line

Graph $x > -2$

1. Draw a dotted vertical line at $x = -2$.

2. Shade to the right of the line.

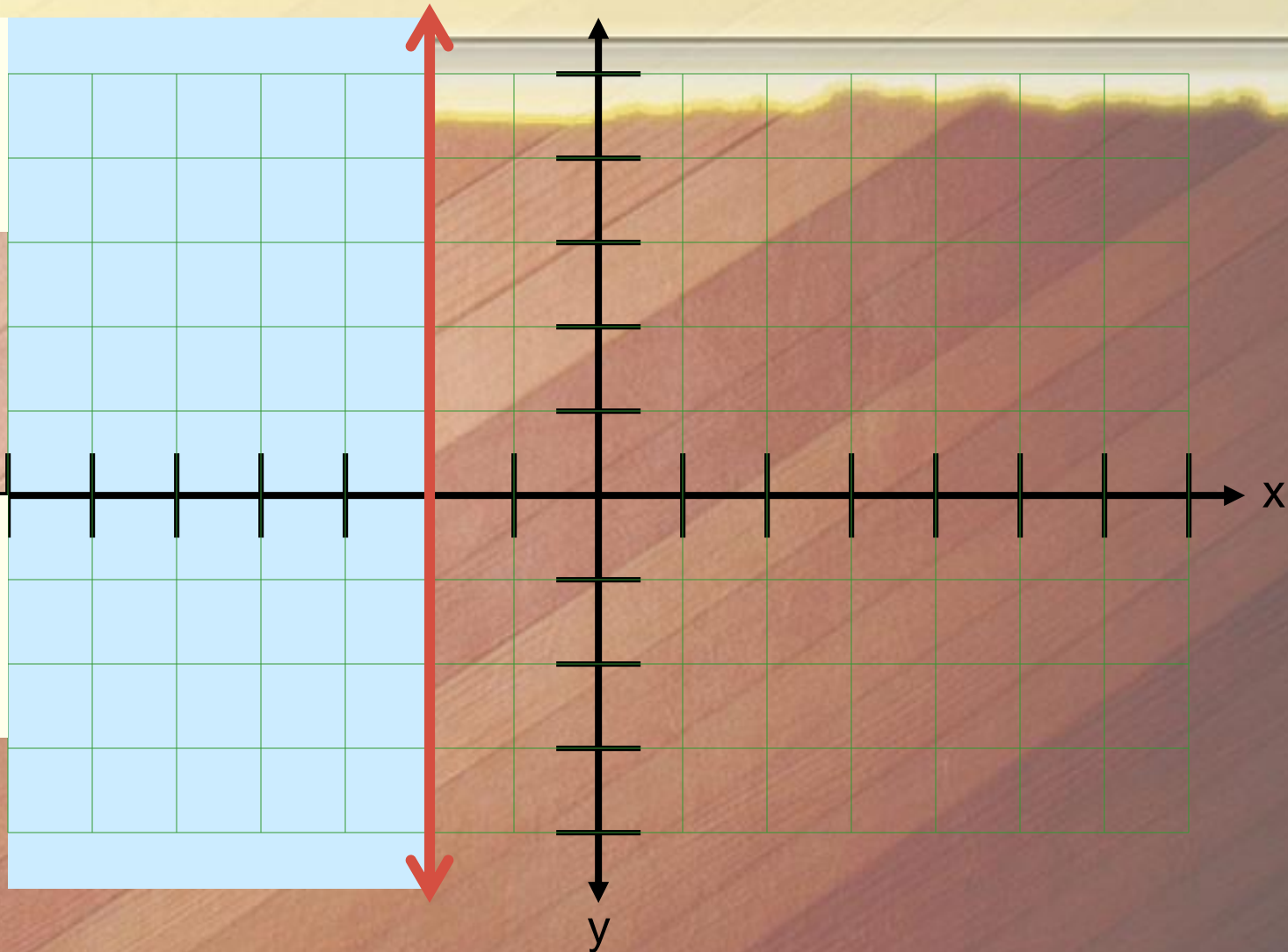


Graph $x \leq -2$.

1. Graph the line
 $x = -2$.

$x = -2$.

2. Shade to the left
of the line.

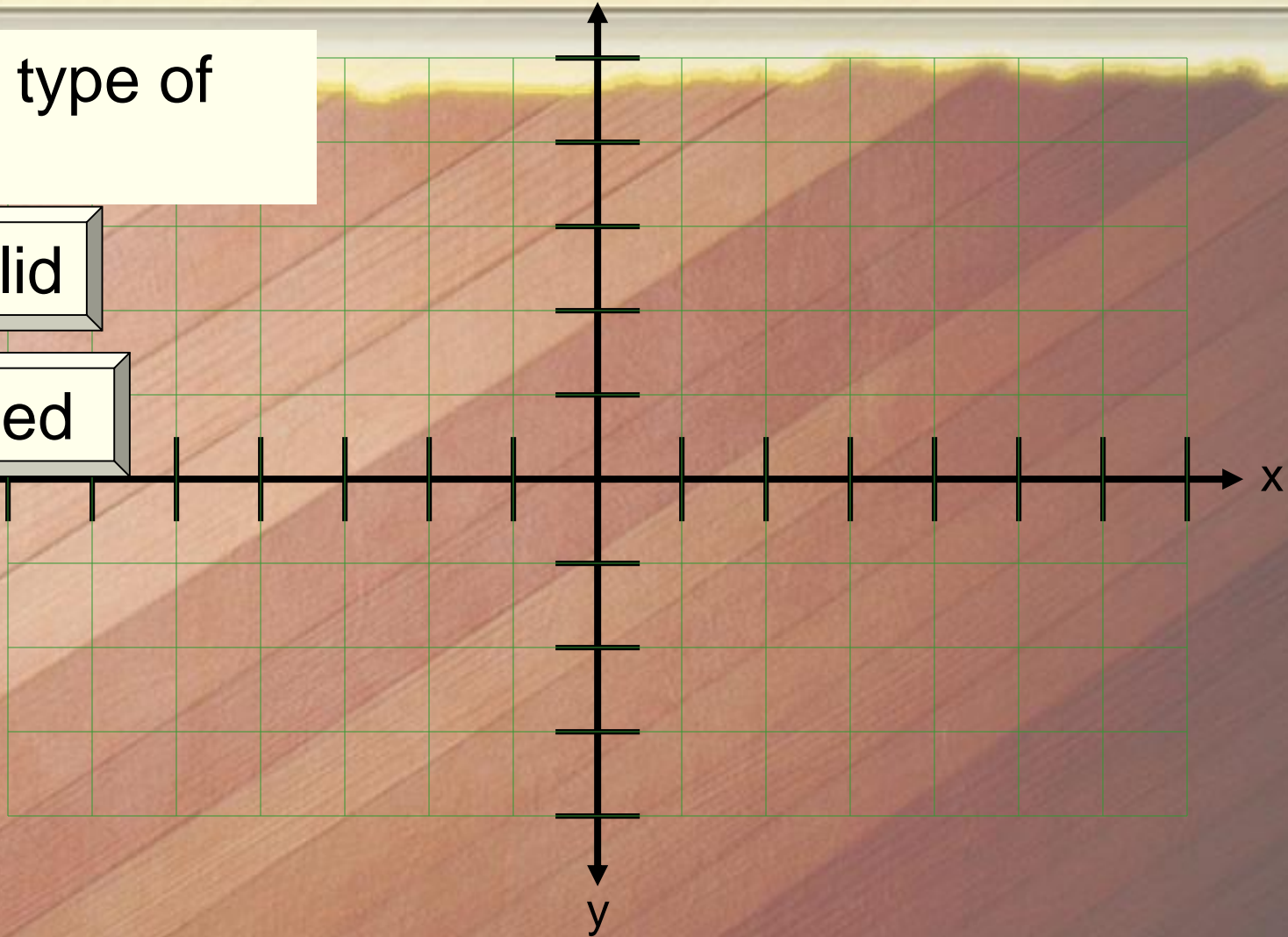


Graph $x \geq 3$.

Choose type of line.

Solid

Dotted



NO 2 HB

Graph $x \geq 3$.

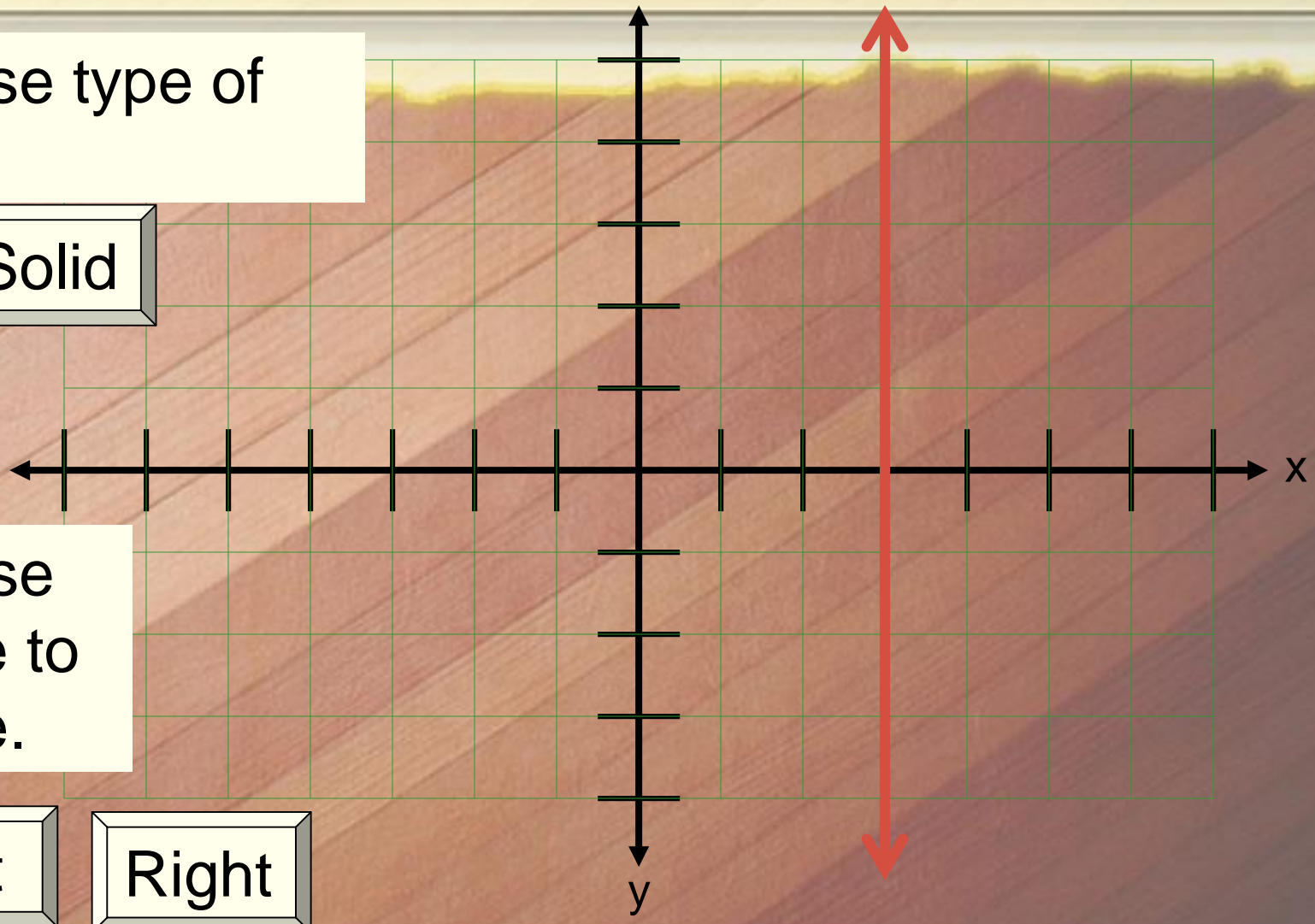
Choose type of line.

Solid

Choose where to shade.

Left

Right



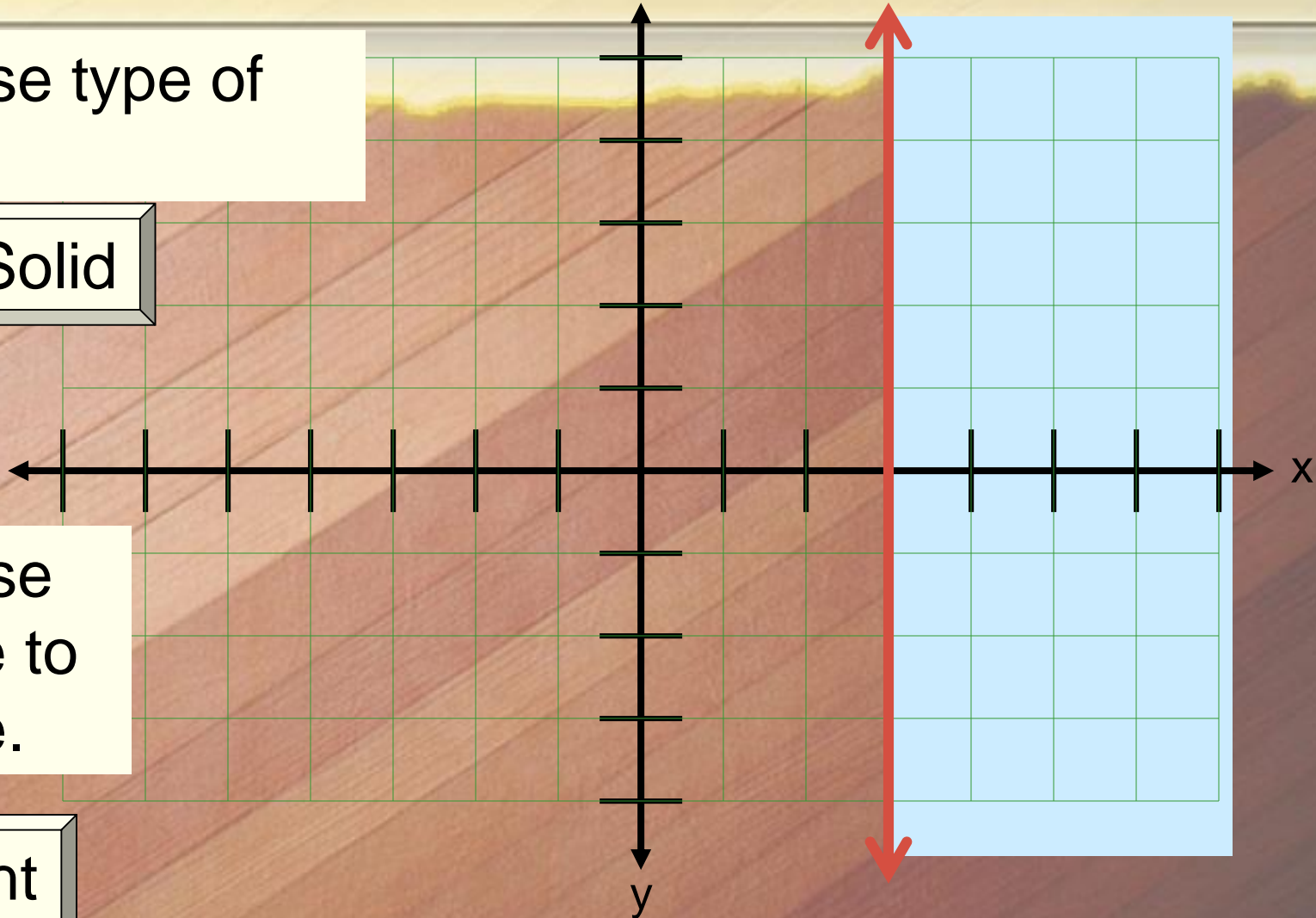
Graph $x \geq 3$.

Choose type of line.

Solid

Choose where to shade.

Right



Solve $-3x - 2y < 12$.

$$\begin{array}{r} +3x \\ \hline \end{array} \qquad \begin{array}{r} +3x \\ \hline \end{array}$$

$$\underline{-2y} < \underline{3x} + \underline{12}$$

$$\begin{array}{r} -2 \\ -2 \\ -2 \end{array}$$

$$y > -\frac{3}{2}x - 6$$

NO 2 HB

Choose the correct inequality.

1. $2x + 5y \geq -10$

$y \geq \frac{2}{5}x + 2$

$y \leq -\frac{2}{5}x - 2$

$y \leq \frac{2}{5}x + 2$

$y \geq -\frac{2}{5}x - 2$

2. $3x - 2y \geq 10$

$y \geq -\frac{2}{3}x - 5$

$y \leq \frac{2}{3}x - 5$

$y \leq -\frac{2}{3}x - 5$

$y \geq \frac{2}{3}x - 5$

Example 1

- Which ordered pair is a solution of $5x - 2y \leq 6$?

A. (0, -3)

B. (5, 5)

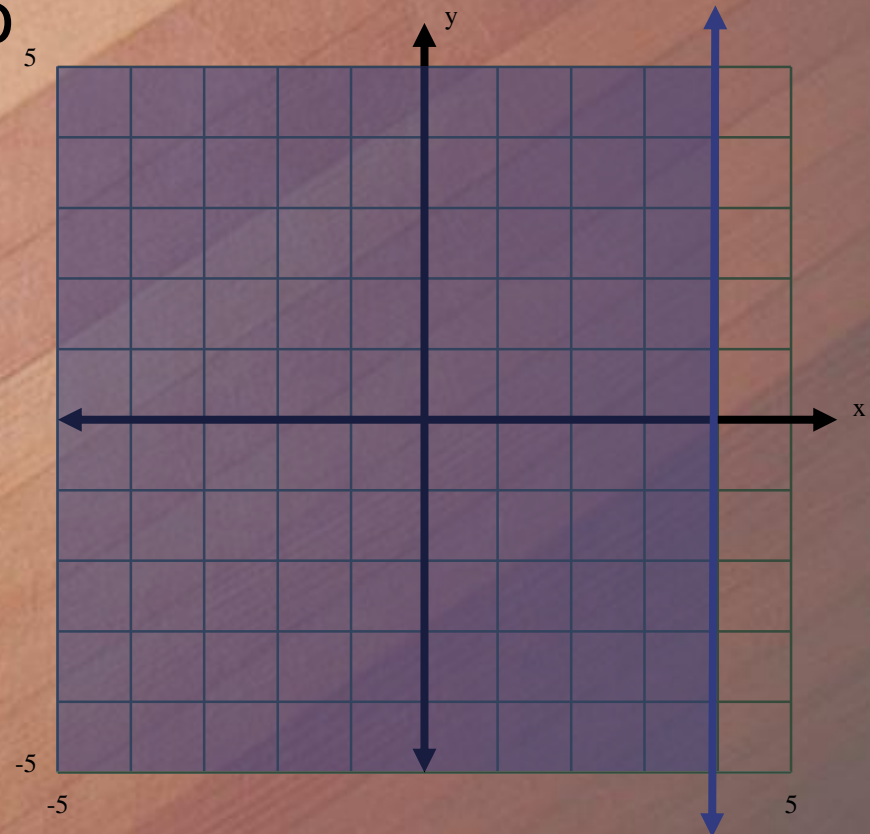
C. (1, -2)

D. (3, 3)

NO 2 HB

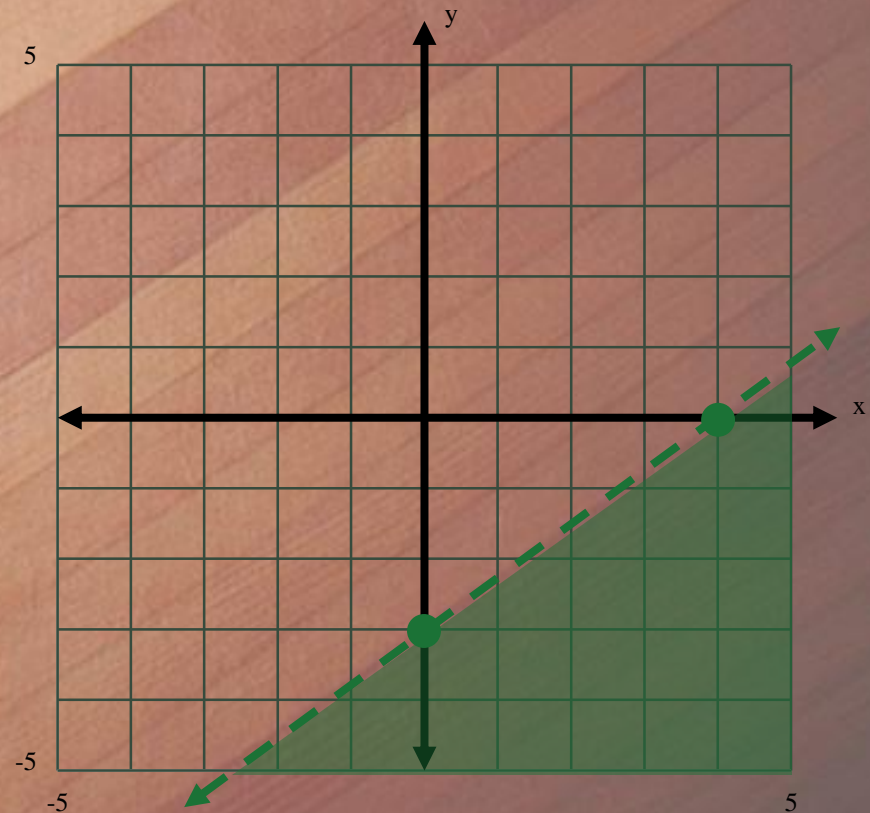
Example 2

- Graph the inequality $x \leq 4$ in a coordinate plane.
- Decide whether to use a solid or dashed line.
- Use $(0, 0)$ as a test point.
- Shade where the solutions will be.



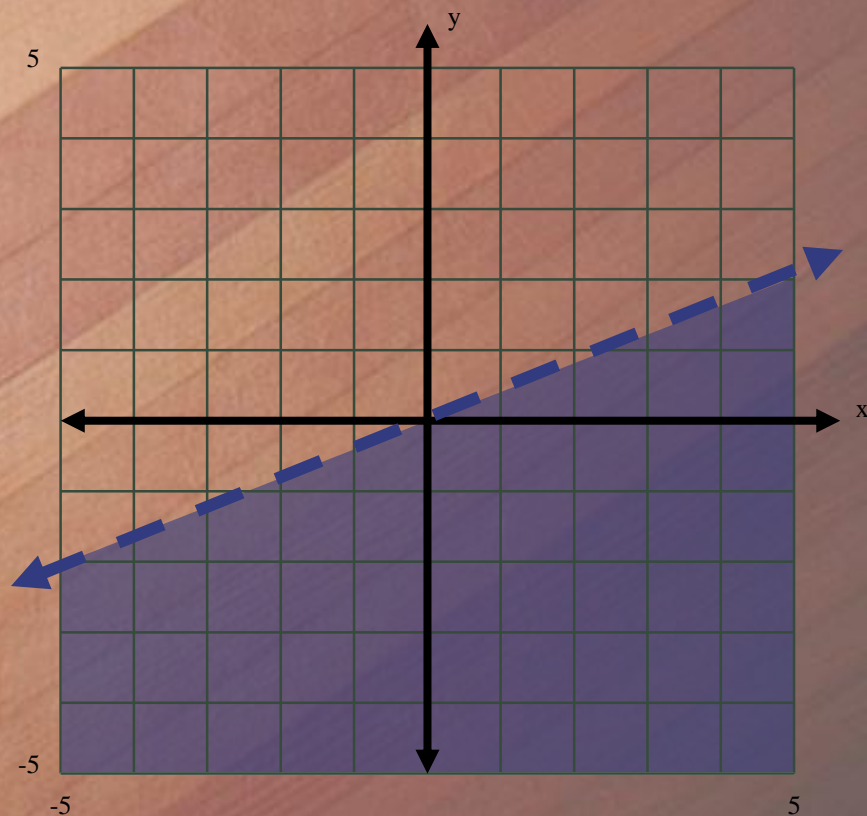
Example 3

- Graph $3x - 4y > 12$ in a coordinate plane.
- Sketch the boundary line of the graph.
 - Solve for “y” first:
 - $y < \frac{3}{4}x - 3$
- Solid or dashed line?
- Use $(0, 0)$ as a test point.
- Shade where the solutions are.



Example 4:

- Graph $y < \frac{2}{5}x$ in a coordinate plane.
- What is the slope and y-intercept?
- $m = \frac{2}{5}$
- $b = (0,0)$
- Solid or dashed line?
- Use a test point OTHER than the origin.
- Shade where the solutions are.



Graph: $y \geq -\frac{3}{2}x + 1$

Step 1: graph the boundary (the line is solid \geq)

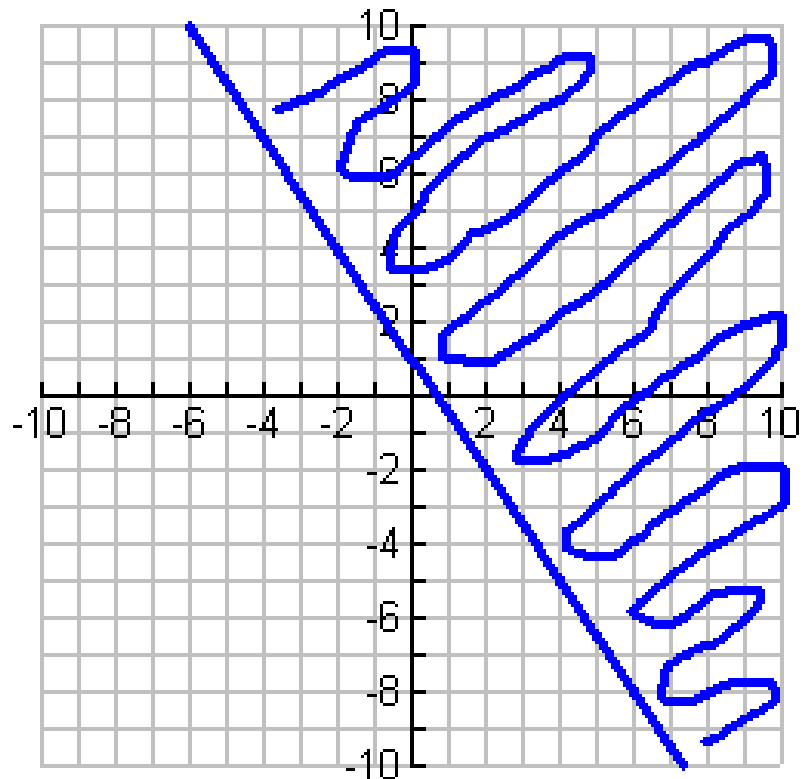
Step 2: test a point NOT On the line
(0,0) is always The easiest if it's Not on the line!!

$$3(0) + 2(0) \geq 2$$

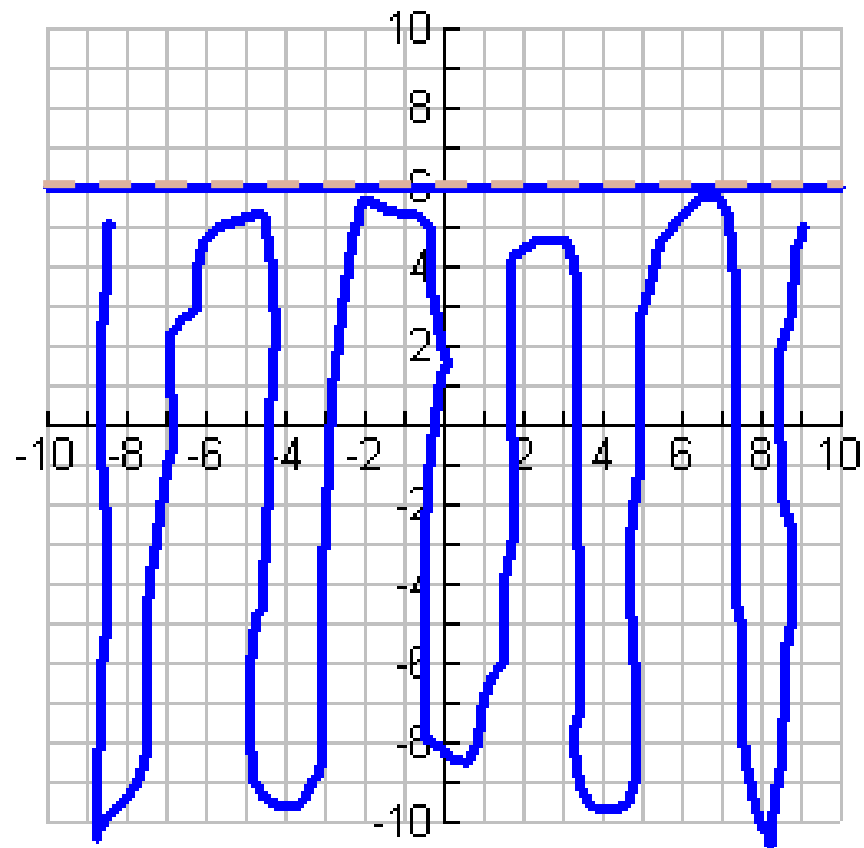
$$0 \geq 2$$

Not a solution

So shade the other side of the line!!



Graph: $y < 6$



NO 2 HB

Graph: $4x - 2y < 7$

