

Evolving your instructions

How to identify issues & make
incremental improvements

I'm going to show you a widget with basic instructions.

Can you think of ways that the instructions on this widget could be improved?

Count on to add. Use the number line to help.

Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

DIGITAL-ONLY CONTENT

$$6 + 2 = \underline{\quad}$$



Check Answer

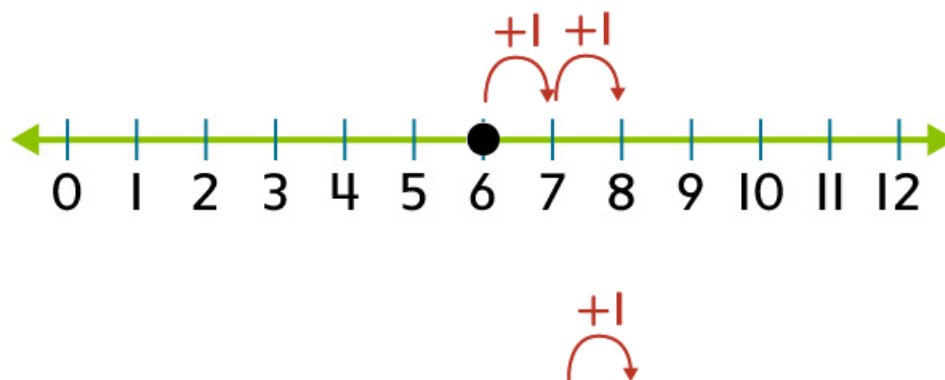
Count on to add. Use the number line to help.

Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

DIGITAL-ONLY CONTENT

$$6 + 2 = \underline{\quad}$$



Correct!

instructions

Count on to add. Use the number line to help.

overall / goal
instructions

Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

interaction
instructions

DIGITAL-ONLY CONTENT

equation

$$6 + 2 = \underline{\quad}$$

invisible
drop zones



draggable
elements

Check Answer

Start by identifying potential usability issues.

Instructions are far away
from interactive elements
(spatial contiguity principle)

Lots of whitespace

Non-interactive elements look
interactive

Count on to add. Use the number line to help.

Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

DIGITAL-ONLY CONTENT

$$6 + 2 = \underline{\quad}$$



Check Answer

Then, make incremental changes
to try and address these issues.

Count on to add. Use the number line to help.

Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

DIGITAL-ONLY CONTENT

$$6 + 2 = \underline{\quad}$$



Check Answer

Revision 1

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend on the number line.

Drag red arrows above the number line to count on.

Check Answer

Revision 1

Reduced whitespace by using built-in widget text fields and resizing canvas



Moved interactive-specific instructions closer to interactive elements

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend on the number line.

Drag red arrows above the number line to count on.

Check Answer

Added clarifying text

Revision 1

Wait, isn't this equation actually part of the instructions?

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend on the number line.

Drag red arrows above the number line to count on.

Check Answer

Revision 2

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend on the number line.

Drag red arrows above the number line to count on.

Check Answer

Revision 2

Moved equation into
instructions text field

▼ TEXT FIELD @ TOP

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$

Text Field

Top and bottom text
field support images!

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend on the number line.

Drag red arrows above the number line to count on.

Check Answer

Revision 2

Equation still looks interactive

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend on the number line.

Drag red arrows above the number line to count on.

Check Answer

Would be nice to reduce this text as much as possible

Revision 3

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

Check Answer

Revision 3

Replaced image equation with text equation

That text equation doesn't look nearly as fun as the image did.

That's true—but it's not fun at all to try interacting with something that doesn't respond.

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

Check Answer

Removed clarifying text (now unnecessary)

Revision 3

That's true.
But now...

Nothing in this widget
looks very eye-catching
or interactive

You're right. Let's
see what we can
do about that. I
think this is the
problem:

There needs to be more
visual hierarchy of
information

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

Check Answer

Revision 4

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend. ●

Drag red arrows above the number line to count on.



Check Answer

Revision 4

Slightly increased visual emphasis on equation (signaling principle)

Added icon to indicate interactivity

Moved interaction instructions onto canvas to be even closer to interactives (spatial contiguity principle)

DIGITAL-ONLY CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend. ●

Drag red arrows above the number line to count on.



Check Answer

Revision 4

Number line instruction is not near
number line

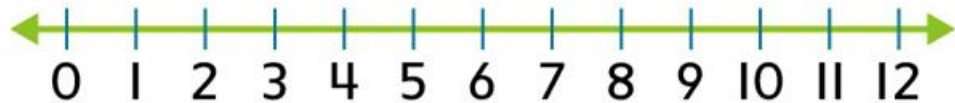
Purpose of this empty space
is not visually clear

Elements related to
interaction are now all closely
grouped but still not visually
distinct from other elements

CONTENT

Count on to add. Use the number line to help.

$$6 + 2 = \underline{\quad}$$



Drag the dot to the greater addend. ●

Drag red arrows above the number line to count on.



Check Answer

Revision 5a

Moved number line instruction closer to number line

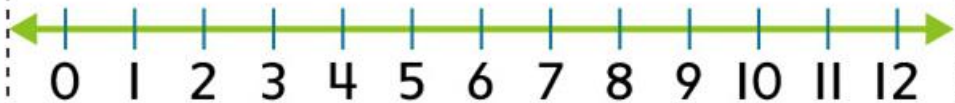
Added border to visually distinguish between instructions and interactive (signaling principle)

Slightly deemphasized auxiliary instruction

Count on to add.

$$6 + 2 = \underline{\quad}$$

Use the number line to help.



Drag the dot to the greater addend. ●

Drag red arrows above the number line to count on.



Check Answer

Revision 5b

Consolidated the primary instructions to a single line with consistent size/weight

Both versions of revision #5 give strong visual emphasis to the primary instructions—whether you prefer them on a single line or split across two is a matter of taste!

DIGITAL-ONLY CONTENT

Count on to add: $6 + 2 = \underline{\quad}$

Use the number line to help.



Drag the dot to the greater addend. ●

Drag red arrows above the number line to count on.



Check Answer

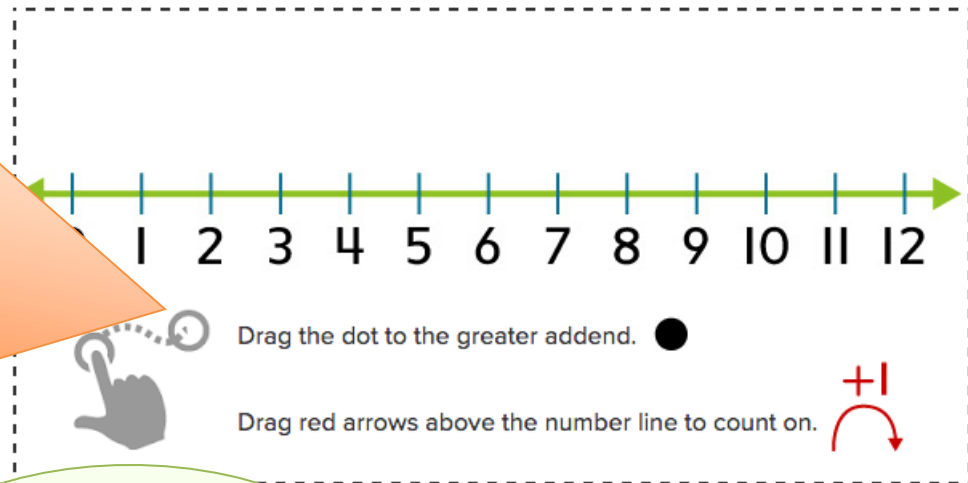
Revision 5b

This revision is pretty good... the biggest issue I can see is something we can't easily fix without template changes.

DIGITAL-ONLY CONTENT

Count on to add: $6 + 2 = \underline{\quad}$

Use the number line to help.



Check Answer

A student might still make the mistake of dragging the dot onto the number rather than the number line.

"Snap to" functionality could help with that, by making the dot snap onto the line if the student placed it on the number.

If we had that, we could also simply say "Drag red arrows to count on."

There'd be no need to specify "above the number line."

Other Options

Count on to add: $3 + 6 = \underline{\quad}$

Use the number line to help.



Place the dot on
the greater addend.



Place arrows
to count on.



Check Answer

Colored
background
instead
of dashed border

Drop shadow behind
drag objects

Instructions below
each object

Rotated and
relocated
hand icon

Original vs. Revised

Count on to add. Use the number line to help.

Drag the dot to the greater addend.

Drag red arrows above the number line to count on.

DIGITAL-ONLY CONTENT

$$6 + 2 = \underline{\quad}$$



Check Answer

DIGITAL-ONLY CONTENT

Count on to add: $6 + 2 = \underline{\quad}$

Use the number line to help.



Drag the dot to the greater addend.

Drag red arrows above the number line to count on.



Check Answer

What did we learn from this?

Guiding Principles

1. **Proximity (spatial contiguity)**—Instructions should be close to the content they apply to.
2. **Visual hierarchy of information (signaling)**—The most important information should be the most prominent. Also, it should be easy to tell which elements are interactive and which are not.
3. **Task instructions vs. UX instructions—(segmenting)** Use text to display task instructions. (Secondary instructions can be displayed separately in a secondary color to show lesser emphasis.) Use icons whenever possible to indicate UX instructions.
4. **Visual cues for interactivity — (signaling)** Use colored backgrounds, borders or other consistent visual elements to call attention to interactive components.

Interested to learn more?

Check out the Overview of Multimedia Learning Principles

on Spark for help in identifying
areas for improvement!

