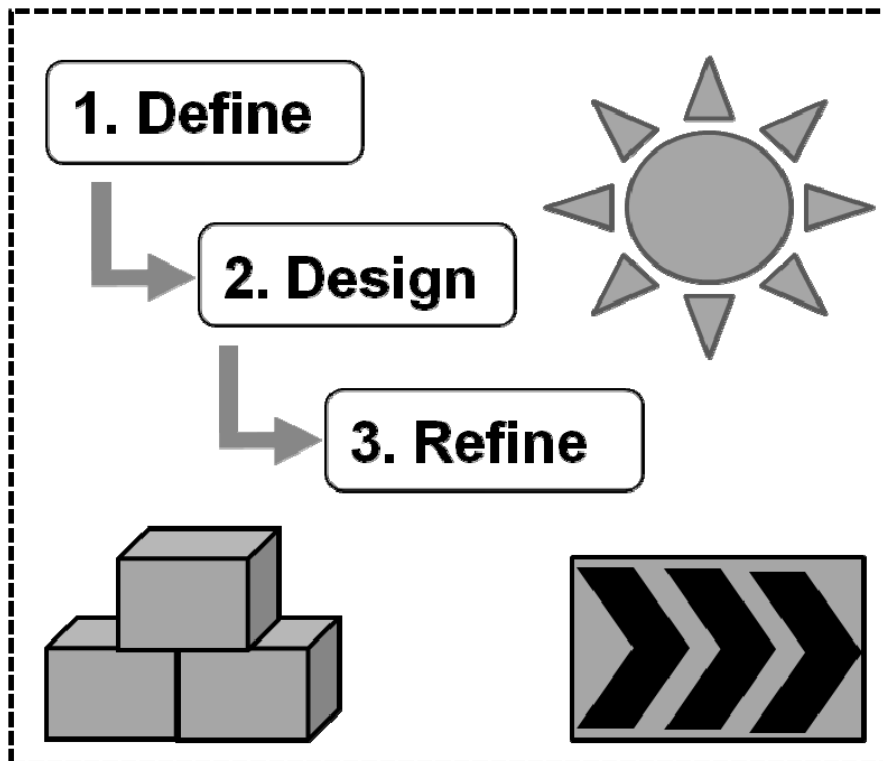


Can you draw me a picture?

Communicating ideas with diagrams



Presented by Jack Massa

Guidance Communications, Inc.

www.guidancecommunications.com

The Case for Diagrams

Key ideas:

1. Diagrams are simply a kind of picture.
2. People learn better if you show them pictures.

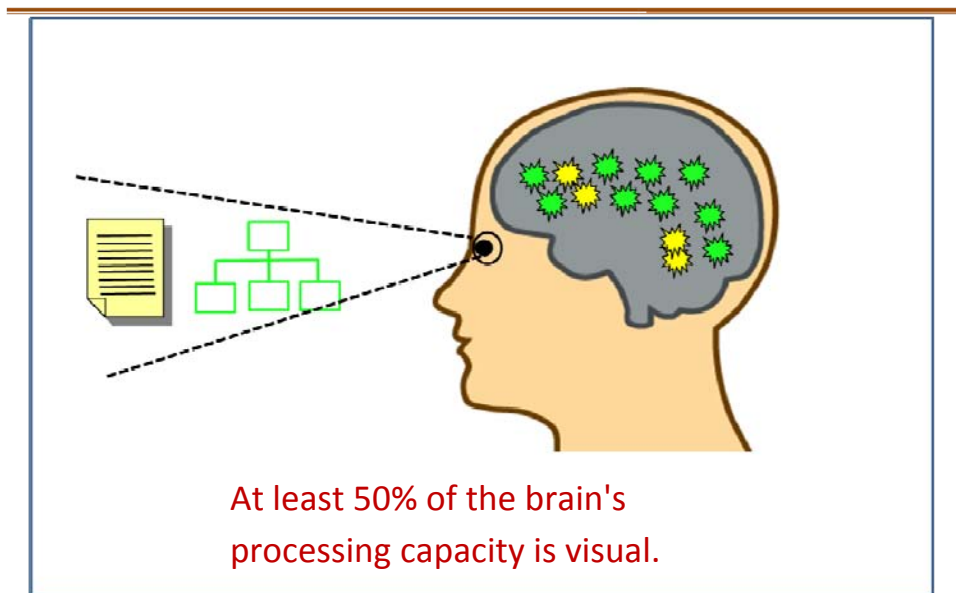
Terminology

Graphics: The entire visual presentation, including layout, fonts, color scheme.

Picture: Any image that represents a concrete or abstract idea. From photographs to simple line drawings.

Diagram: Simple picture created using lines and shapes, possibly also with stock art and words.

Why people learn better with pictures



Research shows that *people learn better from words and pictures together than from words alone.*

Research quoted in

- *Brain Rules* by John Medina
- *Graphics for Learning* by Ruth Colvin Clark and Chopeta Lyons
- *Multimedia Learning* by Richard E. Mayer

What obstacles prevent you from using pictures *effectively* for training?

3-step process for creating great diagrams

1. **Define** the best types of diagram to use for different communication problems.

2. **Design** and draw diagrams using lines, shapes, stock art, and words.

3. **Refine** draft diagrams by applying principles of graphic design.

Step 1 - Define

The first step is to examine the issue or idea and determine **which type of diagram** will work best to communicate it.

The table shows classification schemes for **informational pictures** used by several experts, and Column 4 shows a simplified taxonomy. In this session we' look at Concepts, Parts, and Processes since these are the types of information most readily expressed by **diagrams**.

Dan Roam (visual pathways)	Nancy Duarte <i>slide:ology</i>	Ruth Clark (info types)	Simplified
Who / What = Portrait	Pictorial	Concepts / Facts	Concept
How Much = Chart	Display Data	Facts	<i>Quantity</i>
Where = Map	Structure / Cluster / Radiate	Concepts / Facts	Parts
When = Time Line	Flow	Procedures / Processes	Process / Steps
How = Flowchart	Flow	Procedures / Processes	Process
Why = Multi- variable plot		Principles	<i>All of the above</i>

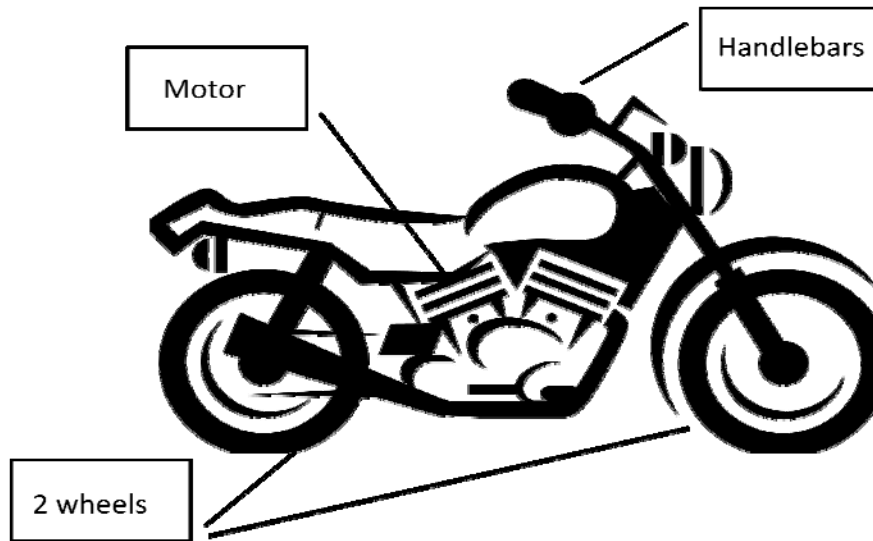


Concept Diagrams

Use concept diagrams to:

- **Identify** ideas and make them **memorable** through pictures.
- Help learners understand and remember ideas by seeing their **critical characteristics**.
- Help learners understand ideas by showing how they **compare** to other ideas.


What is a motorcycle?



Teaching physical concepts: Use a symbol or simple line drawing to show what the object looks like. Add callouts to identify critical characteristics.

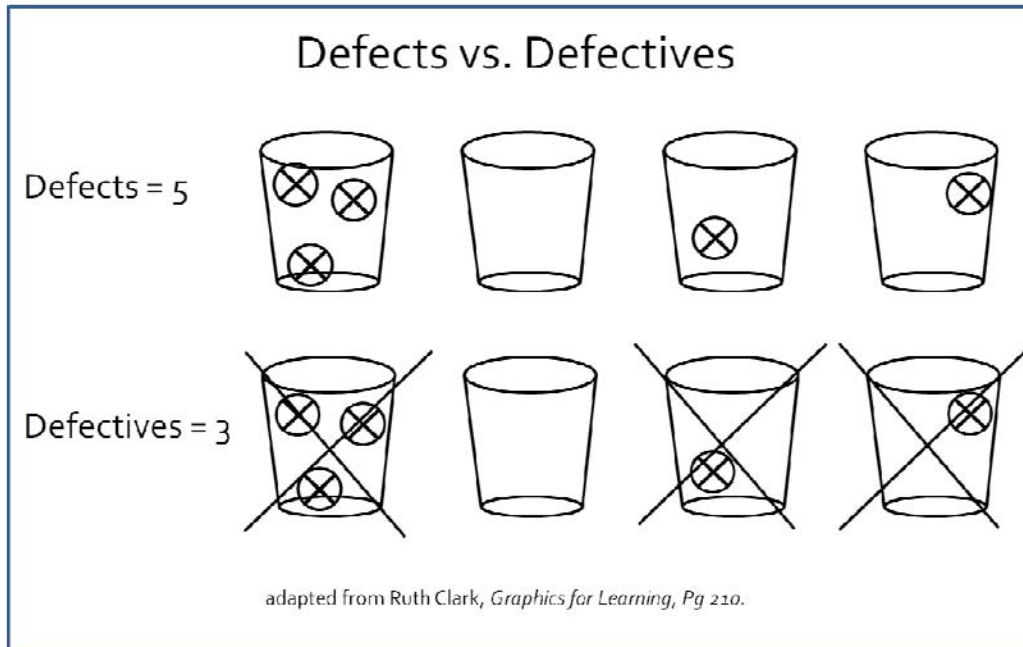
Coaching that hits the "MARC"

- M** measurable
 - Effect can be measured
- A** actionable
 - Results in plans the employee can act on
- R** relevant
 - To specific employee activities
- C** consistent
 - Evaluations and coaching methods



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Teaching abstract concepts: The mnemonic "MARC" makes this collection of abstract qualities easier to remember. Adding the **visual metaphor** of the target increases the "stickiness" of the idea.



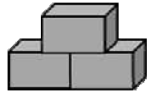
Comparison of two concepts. Note that **simple pictures** that focus on the learning point are more effective than more "realistic" pictures.

Use concept diagrams to answer these kinds of questions:

- What does it look like?
- How do I know it when I see it?
- How does it work?
- Why is it better?
- How is it different from something else?

Tips for visualizing Concepts

- What specifically do you need the learner to *remember*?
- Use metaphors to represent abstract ideas with physical objects.
- Close your eyes and literally *imagine* the concept: What pictures come to mind?



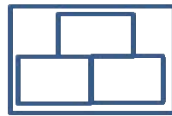
Parts Diagrams

Use Parts diagrams to show:

- Structure
- Classification
- Organization
- Relationships

Some subtypes of Parts diagrams:

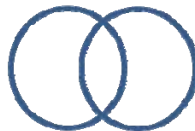
Box diagrams



Tree and radiating diagrams



Venn diagrams

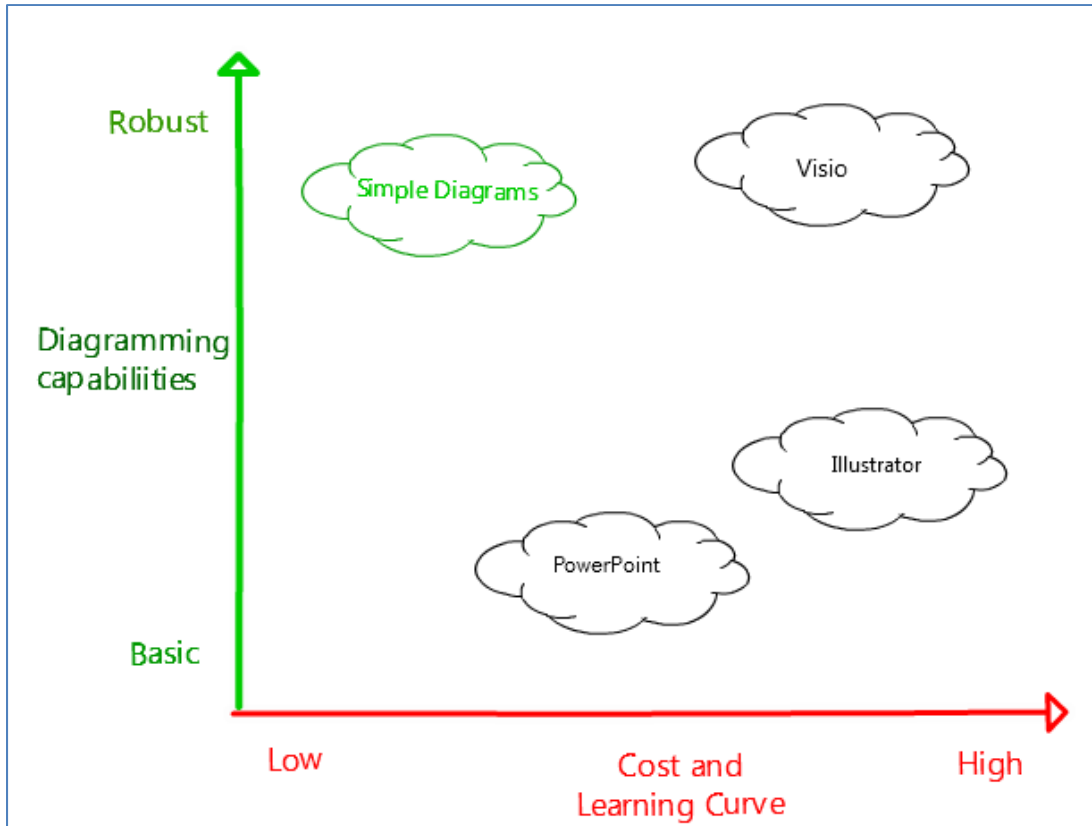


Maps and floor plans



Mind maps





Parts diagrams as "plots." A two-axis plot like this is a great way to visualize the relationships of a complex set of ideas—even if the dimensions are not strictly-speaking numerical. See Dan Roam's *Unfolding the Napkin* for more examples.

Use Part diagrams to answer these kinds of questions:

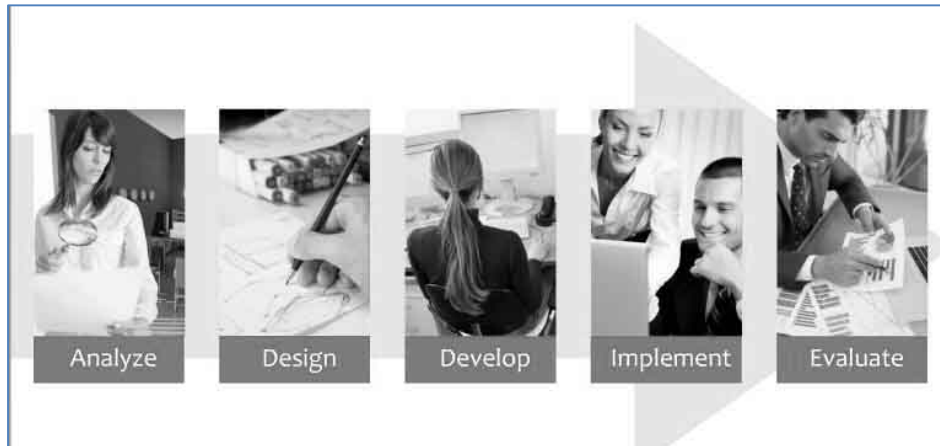
- What are the pieces?
- How do the parts relate?
- How does X fit into the picture?

- What is our overall product/service structure?
- What is our market position?
- What is our overall strategy?

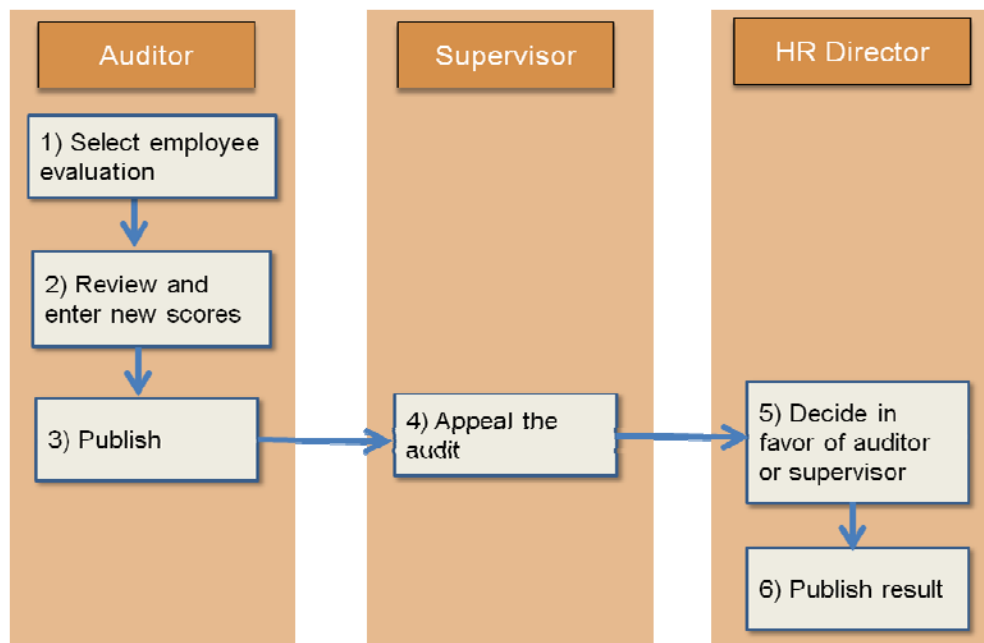


Process Diagrams

- Show change over time
- May be simple or conditional/branching
- May show one or many parties
- May be linear or cyclical



Simple linear process. Adding photos or symbols for each stage creates visual interest and makes the diagram more memorable. ©2012 Noelle Archambeau, used by permission.



Horizontal or vertical **swim lanes** show a process performed by multiple parties.

Tip: Observe the 7+/- 2 rule to keep process diagrams as simple as possible.

Use Process diagrams to answer these kinds of questions:

- What happens when?
- Who does what?
- What is the order, sequence?

- What's our outlook for this week/ month/ year?
- How do we get to our goal?

Challenge

Think of a business problem or issue you are currently facing. Which of type of diagram can you best use to picture it?

Step 2 - Design

After thinking about your idea and the best type of diagram to represent it, you need to take up your pencil, pen, or mouse and *just start drawing*.

This is similar to writing a first draft of a document. Once you've thought through the content, you need to relax and let your subconscious mind take over. And just like writing, drawing diagrams is a skill. The more you practice it, the better and faster you will get.

Should you sketch by hand or on the computer?

Both Dan Roam and Nancy Duarte are strong advocates of drawing by hand first. They believe it fosters better creativity and removes the distractions of using the technology.

Others find drawing by hand cumbersome and prefer to dive right in with software.

Recommendation: Try all available methods and see what works best for you.

Your Turn to Draw!

In the space below draw a diagram to communicate the current business issue or problem you decided on earlier. Or you can draw one for the following scenario:

Here are new on-boarding rules for contract workers. They have to undergo a drug screening and a background check. They then have to have 2 days of orientation training and a week of mentoring. The drug screening and background check must be done by the contracting agency. The training and mentoring are done by operations staff on the job.

Step 3 - Refine

At this step, you take your draft diagram and modify and re-arrange the elements according to the rules of good graphic design.

Working with a designer

If you are lucky enough to have a professional graphics person on your team (or a freelance resource) it would be at this point that you get them involved. For the most part, they would handle the Refine step. Typically, you would give the designer your rough version and explain the purpose. They would ask some questions and then come back with one or two versions for you to review.

Working as your own designer

If it's all up to you, you can still make your diagrams look professional and communicate effectively by applying these **four principles of graphic design**:

- Proximity
- Alignment
- Repetition
- Contrast

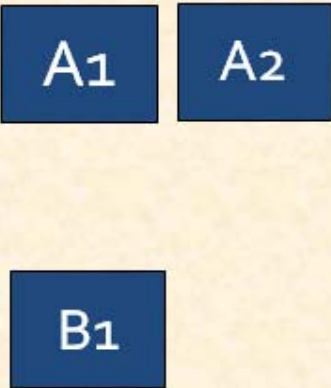
For more on these principles, see Robin Williams' *The Non-Designer's Design Book*.

Proximity

Group related items close together so they form one visual unit.

Items that are not related should not be placed close together.

Use adequate white space to separate visual units.

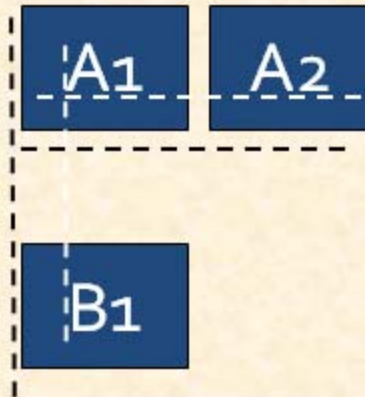


Alignment

Nothing should be placed arbitrarily.

Align edges with edges, text with text.

Alignment ties the overall visual together, even when elements are placed apart.

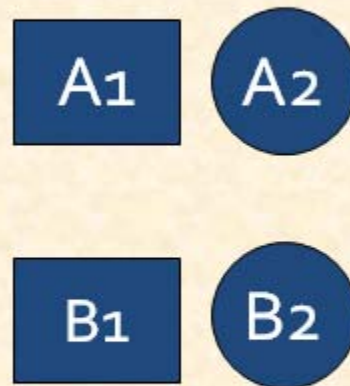


Repetition

Repeat aspects of the design throughout.

Repetition creates visual cues that unify the design.

For diagrams, repeat shapes and colors for similar objects or ideas.



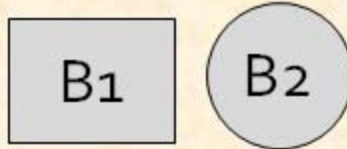
Contrast

Use contrast to show items that are different.



Strong contrast creates strong visual interest.

For diagrams, use contrasting size, shape, line weight and color.



One more diagram to draw:

Resources

Books and learning sites

Brain Rules by John Medina. Pear Press, 2008.

Graphics for Learning by Ruth Colvin Clark and Chopeta Lyons. 2nd Edition, Pfeiffer, 2011.

Multimedia Learning by Richard E. Mayer. 2nd Edition, Cambridge University Press, 2009.

Illustrating Computer Documentation by William Horton, Wiley Publishers, 1991.

Periodic table of visualization methods. www.visual-literacy.org/periodic_table/periodic_table.html

Show me the Numbers by Stephen Few. Analytics Press, 2003

slide:ology by Nancy Duarte. O'Reilly Media, 2008.

SmartDraw Blog. www.smartdraw.com/blog/

The Non-Designer's Design Book by Robin Williams, 3rd Edition, Peachpit Press, 2008.

The Rapid E-Learning Blog by Tom Kuhlmann. www.articulate.com/rapid-elearning/

Unfolding the Napkin by Dan Roam. Penguin Group, 2009.

Visual Thinking for Design by Colin Ware. Morgan Kauffman Publishers, 2008.

Visual.ly information design community: <http://visual.ly>

Sources of clip art and symbols

The Noun Project: <http://thenounproject.com/>

Icon finder - <http://iconfinder.com>

Tools

Simple Diagrams <http://www.simplediagrams.com/>

Smartdraw: <http://www.smartdraw.com/>

Microsoft Visio: <http://office.microsoft.com/en-us/visio/>

About the presenter

Jack Massa is Principal of Guidance Communications, Inc. where his mission is making complex information clear. Jack has designed, developed and delivered training solutions for organizations such as Unisys, Equifax, The Home Depot, InterCall, Digital Insight/Intuit, and many others.

Jack has a Masters Degree in Creative Writing and certificates in Learning Design and Computer Programming. He is an Associate Fellow of the Society for Technical Communication and past Vice President of Technology for Greater Atlanta ASTD.

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