

PROJECT LEAD THE WAY

PLTW

Brainstorming Solutions

Brainstorming Solutions

- Brainstorming
- Rules for Brainstorming
- Brainstorming Techniques
- Concept Generation Dysfunctions
- If You Get Stuck . . .

Brainstorming



Brainstorm: A group technique for solving problems, generating ideas, stimulating creative thinking, etc.

It involves collecting ideas without regard to feasibility (constraints).

Brainstorming



Brainstorming can be done individually or in groups.

It can be timed or untimed.

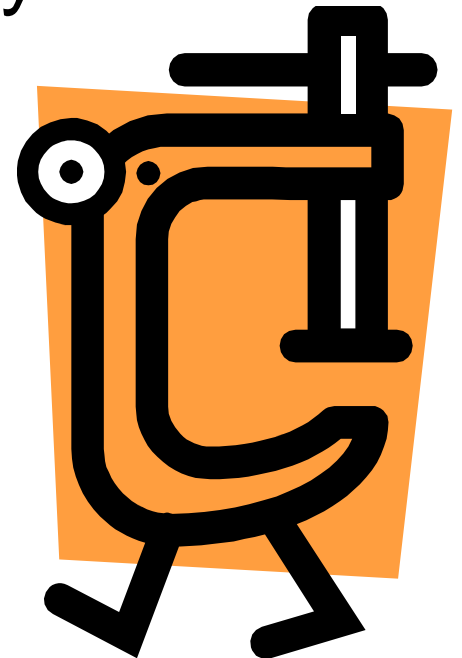
Rules for Brainstorming

1. No criticism allowed
2. Work for quantity
3. Welcome “piling-on”
4. Allow “free-for-all”



1. No Criticism Allowed

- People tend to automatically evaluate each suggested idea—their own, as well as others. Hold back from doing this. Cutting ideas will come later. If you have a better idea, say it.
- Allow all members to contribute.



2. High-Quantity Brainstorming

- People often must experience “brain-drain” – completely running out of ideas – before the most innovative, creative ideas start to surface.
- Therefore, the more ideas generated, the more likely innovative ideas will surface.



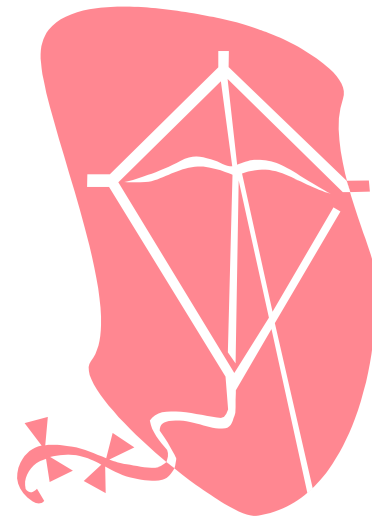
3. Welcome “Piling-On”

- **Piling-on** occurs when a member’s idea gives someone else a similar idea or a modified idea.
- All ideas should be recorded.



4. Allow “Free-for-All”

- Outrageous, humorous, and seemingly unimportant ideas should be recorded.
- It is possible for the most off-the-wall idea to be one wherein lies a hint to the solution for the problem.
- The sky is the limit.



Rules for Brainstorming

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Add, don't subtract!

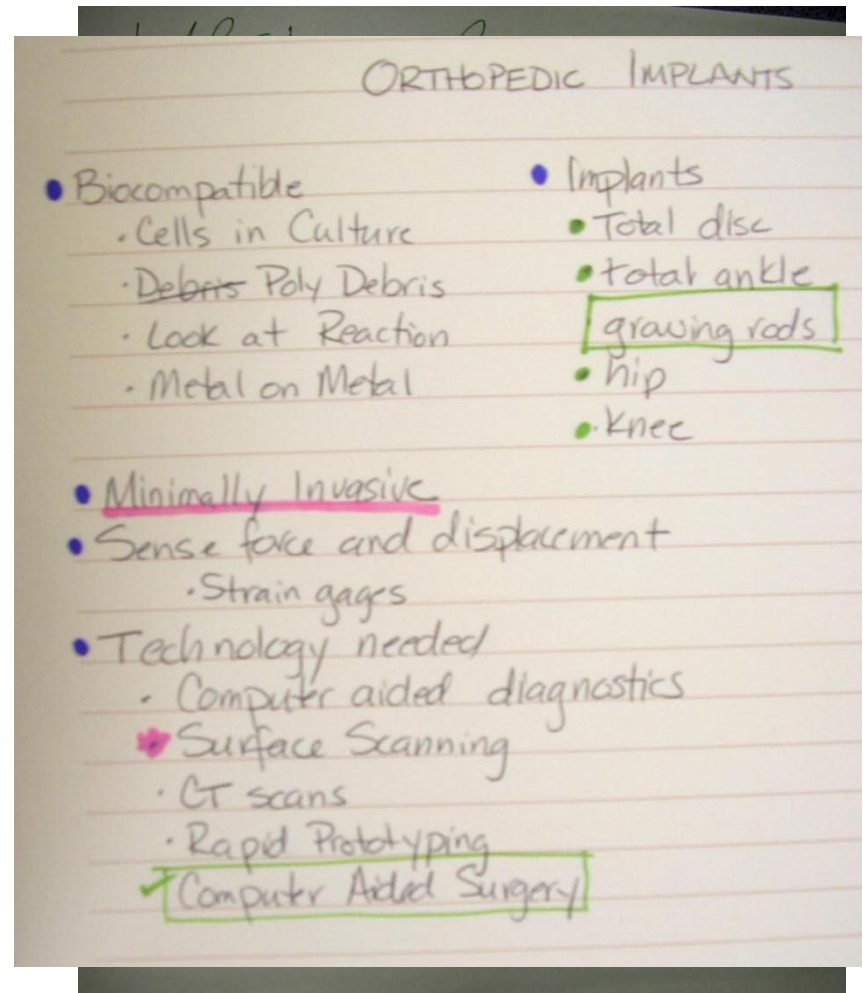


Brainstorming Solutions

- Brainstorming
- Rules for Brainstorming
- **Brainstorming Techniques**
- Concept Generation Dysfunctions
- If You Get Stuck . . .

Brainstorming Mechanics

- “Blurting out”
 - Requires a person to take notes
- Free Writing
 - All members writing at the same time on a whiteboard
 - All members writing Post-It® Notes and sticking them on a wall



Brainstorming Techniques

There are many brainstorming techniques (Google it!). Here are three:

- Forced Association – random words
- SCAMMPERR – hot potato game
- Mind Mapping - drawing

Forced Association

Add a seemingly unrelated word or object to an idea, and combine them into a new idea.

For example, let's say that you are brainstorming ideas to eliminate speeding on freeways. Choose a provocative stimulus that seems unrelated, such as a **cell phone**.

Now think of ways that a cell phone could help you solve the problem. Maybe you could offer rewards for people who report speeders using their cell phones. Maybe you could use the GPS capabilities of the phones to track car speeds. Maybe . . .

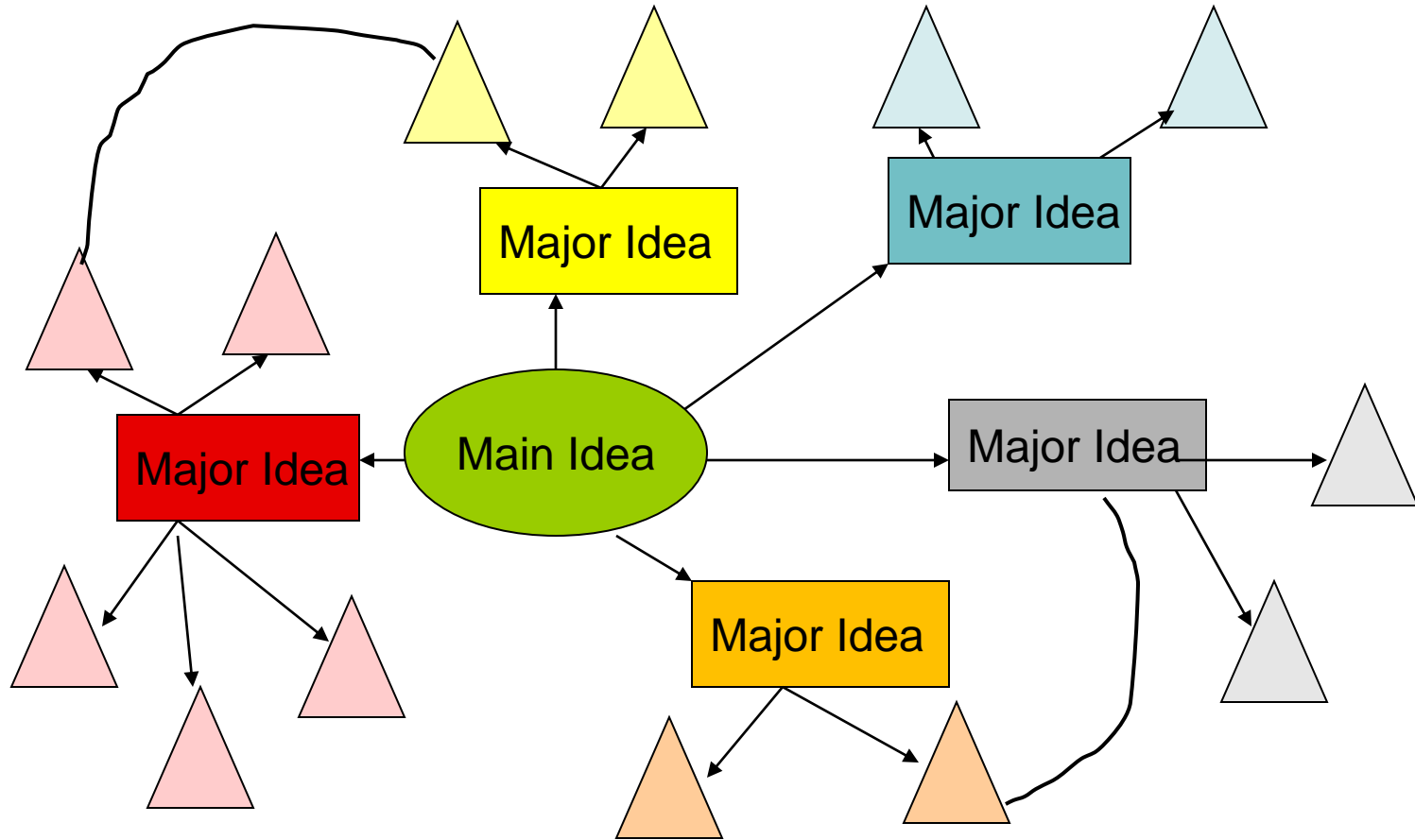
SCAMMPERR

Start with an idea, and then in sequence:

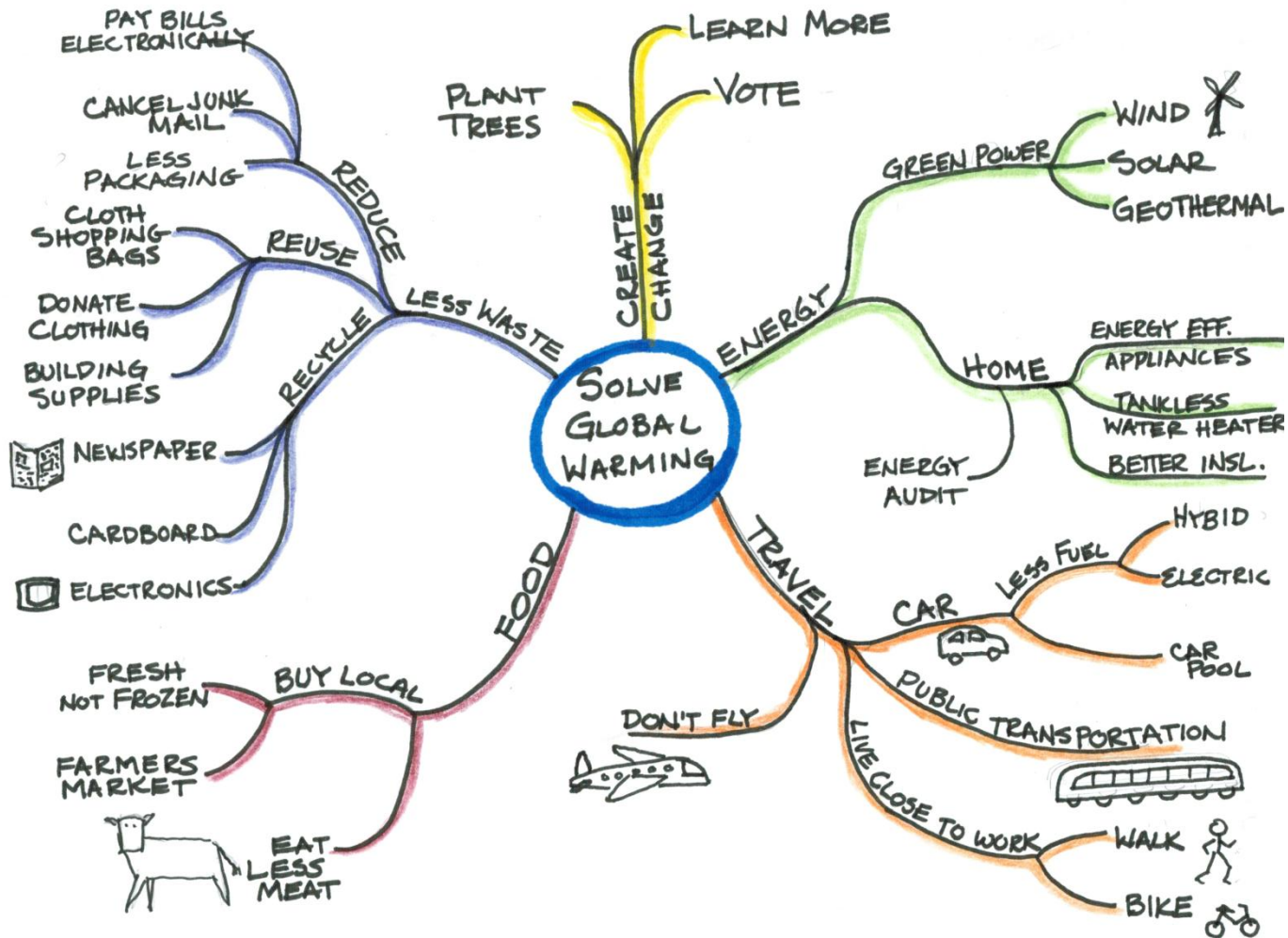
S	Substitute something . . .
C	Combine it with something else . . .
A	Adapt something to it . . .
M	Magnify or add to it . . .
M	Modify it . . .
P	Put it to some other use . . .
E	Eliminate something . . .
R	Rearrange it . . .
R	Reverse it . . .

Mind Mapping (Concept Mapping)

Visually organize ideas by drawing. Use pictures or a few words.



Mind Mapping Example



Brainstorming Documentation

All ideas should be captured

- Have a notetaker
- Take photographs
- Compile ideas after the session



Brainstorming Techniques

- Forced Association – random words
- SCAMMPERR – hot potato game
- Mind Mapping – drawing
- And many more...

Brainstorming Solutions

- Brainstorming
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- Brainstorming Techniques
- **Concept Generation Dysfunctions**
- If You Get Stuck . . .

Concept Generation Dysfunctions

You may run into trouble by:

- Utilizing a poor design brief
- Assuming there is only ONE right answer
- Getting hooked on the FIRST solution
- Considering the ideas from only one or two team members

Concept Generation Dysfunctions (continued)

- Feeling too anxious to finish
- Becoming frustrated by the lack of success
- Getting hooked on a solution that *almost* works

Try to avoid these!

If You Get Stuck . . .

- Combine promising partial solutions
- Try a different brainstorming technique
- Try both individual and group brainstorming
- Do some more research
 - Examine concepts used by other designs
 - Examine concepts employed in unrelated products

Image Sources

Microsoft, Inc. (2008). *Clip art*. Retrieved from
<http://office.microsoft.com/en-us/clipart/default.aspx>