

# SOLO Taxonomy: A mental model for learning to learn.

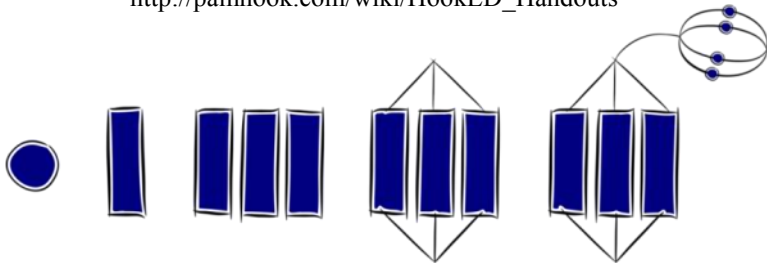
Pam Hook

[pam.hook@gmail.com](mailto:pam.hook@gmail.com)

[www.pamhook.com](http://www.pamhook.com)

[http://blog\\_core-ed.org/learningatschool/2011/12/speakers-taster-pam-hook.html](http://blog_core-ed.org/learningatschool/2011/12/speakers-taster-pam-hook.html)

[http://pamhook.com/wiki/HookED\\_Handouts](http://pamhook.com/wiki/HookED_Handouts)

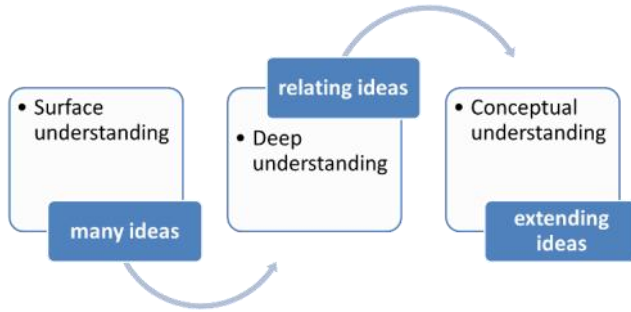


Workshop participants will gain a clear understanding of the:

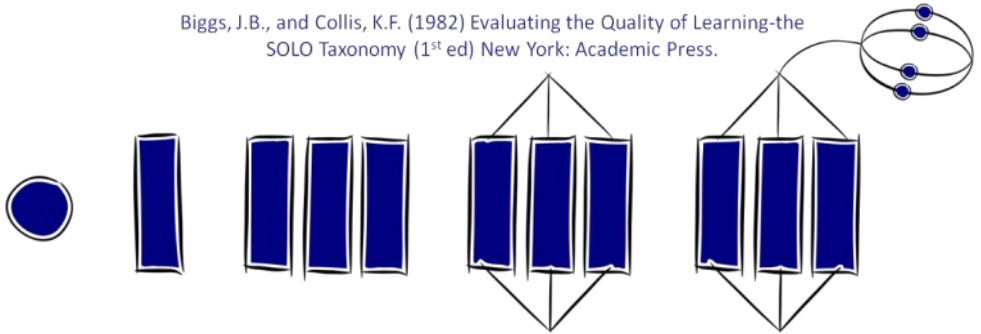
- the key attributes of assessment capable students;
- the ways in which SOLO can help students identify their learning strengths and needs; and
- the reasons why students using SOLO make skilled and active 'Where to next?' decisions.

# SOLO Taxonomy - Biggs and Collis 1982

## The Structure of Observed Learning Outcomes

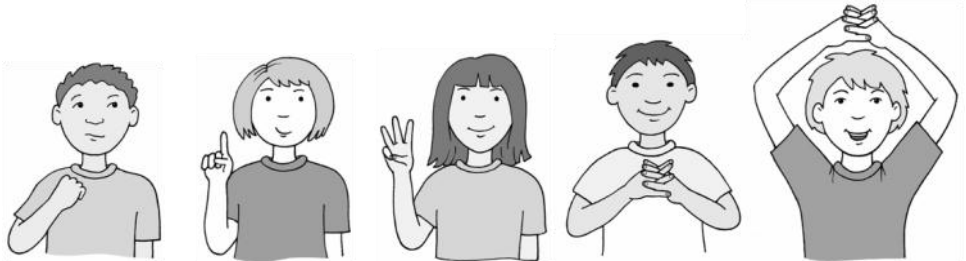


Biggs, J.B., and Collis, K.F. (1982) Evaluating the Quality of Learning-the SOLO Taxonomy (1<sup>st</sup> ed) New York: Academic Press.



Prestructural Unistructural Multistructural Relational Extended Abstract

Learning outcomes show unconnected information, no organisation.	Learning outcomes show simple connections but importance not noted.	Learning outcomes show connections are made, but significance to overall meaning is missing.	Learning outcomes show full connections made, and synthesis of parts to the overall meaning.	Learning outcomes go beyond subject and makes links to other concepts – generalises.
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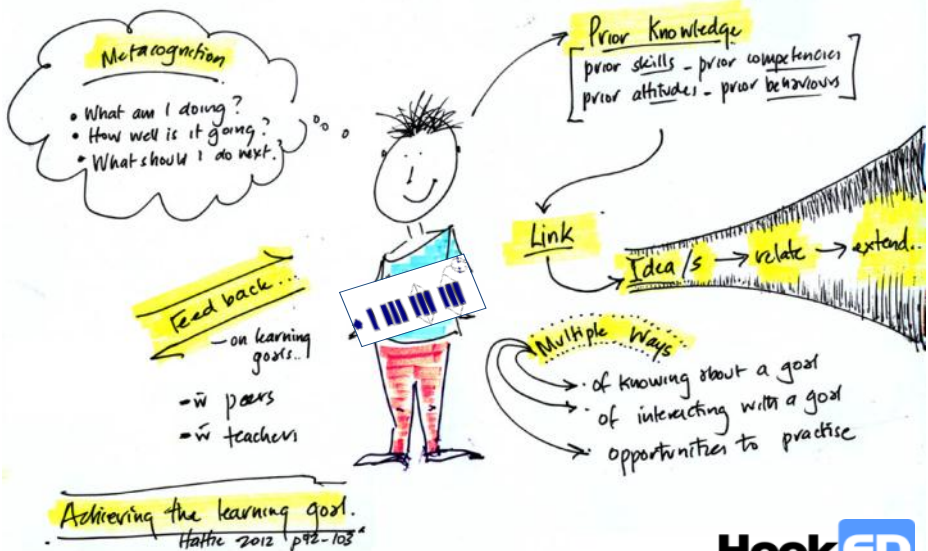
The most powerful model for understanding these three levels and integrating them into learning intentions and success criteria is the **SOLO (structure of observed learning outcome) model** developed by Biggs and Collis (1982).

Hattie 2012 p54

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<b>Unistructural</b>	Define, identify, name, draw, find, label, match
<b>Multistructural</b>	Describe, list, outline, follow a procedure
<b>Relational</b>	Sequence, classify, compare and contrast, explain causes, explain effects, analyse, make an analogy, organise, distinguish, interview, question
<b>Extended Abstract</b>	Generalise, predict, evaluate, reflect, hypothesise, create, prove, plan, justify, argue, compose, prioritise, design, construct, perform



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### Learning Intention:

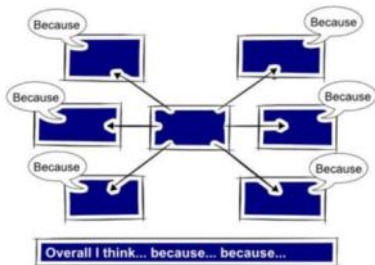
LI: To [SOLO verb] [content] [context]

e.g. I am learning to describe the habitat of the tuna (eel) in the Ngongotaha Stream

### Effective strategy:

HOT SOLO Map aligned to the learning verb

e.g. Student uses a **HOT SOLO Describe Map** and success criteria in the **self assessment rubric** to plan their description.



### Target Vocabulary:

insert target and technical vocabulary.  
e.g. *and, in addition, as well as, also, too, for example, another, because, overall*

### Success Criteria (SC):

HOT Describe Rubric

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

### Learning Outcome:

e.g. Student writing, annotated diagram or oral description of the habitat of the tuna (eel) in the Ngongotaha Stream.

### Feedback (How am I going?):

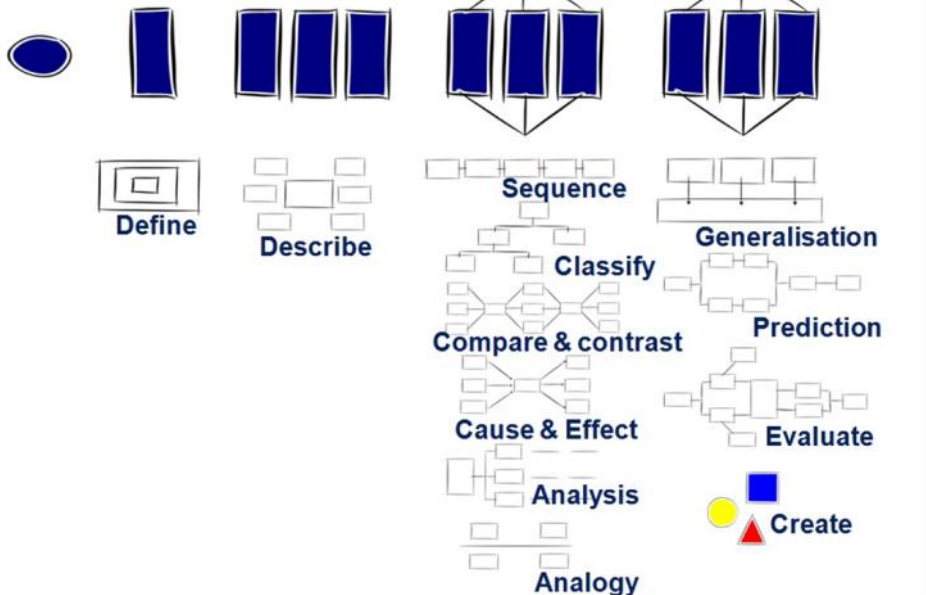
My learning outcome is [insert SOLO level] because .....

### Feed Up (Where to next?):

My next step is to .....



## SOLO Taxonomy and HOT Maps and Self assessment Rubrics



# SOLO Taxonomy

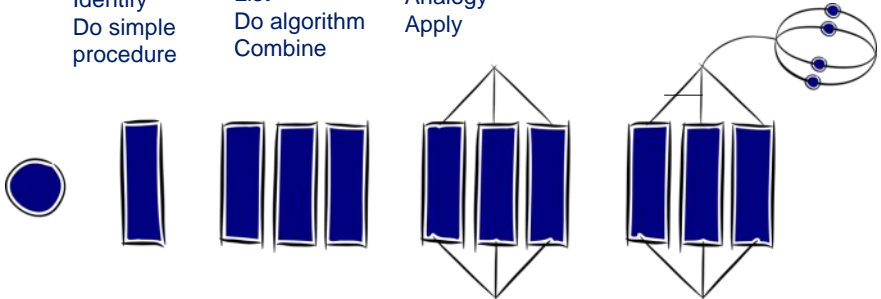
## Biggs and Collis 1982

Define  
Identify  
Do simple procedure

Define  
Describe  
List  
Do algorithm  
Combine

Formulate questions  
Compare/contrast  
Explain causes  
Sequence  
Classify  
Analyse -part/whole  
Relate  
Analogy  
Apply

Evaluate  
Theorise  
Generalise  
Predict  
Create  
Imagine  
Hypothesise  
Reflect



Biggs, J.B., and Collis, K.F. (1982) Evaluating the Quality of Learning-the SOLO Taxonomy (1<sup>st</sup> ed) New York: Academic Press.

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HookED SOLO Learning Intention Generator

Clicking a SOLO level will select or deselect it

SOLO levels: Unistructural, Multistructural, Relational, Extended Abstract

Select the verbs you want to use from each level:

Verbs

Unistructural: Check all verbs  
 Define, Name, Find, Match

Multistructural: Check all verbs  
 Describe, Outline

Relational: Check all verbs  
 Sequence, Compare and contrast, Finish effects

Identify, Draw, Label, Recall, List, Follow a procedure, Classify, Explain causes, Analyse

Home, News, About, SOLO Taxonomy, HookED Wiki, Free Resources, Downloadable Resources, Learning Intention Generator, SOLO Symbol Generator, SOLO Self Assessment Tool, SOLO Planning Online, Publications, Video, Calendar, Contact

SOLO Taxonomy: A Guide for Schools Bk 1&2

Plus: BLOG: art1choke

art\_1choke (@soopfrteach @lancauni) You made me laugh ... but I have seen terms like "gnition" and "front loading" used.

soopfrteach (@soopfrteach @lancauni) I had't seen that one! It's from Pam Hook who tweets as @art\_1choke I heartily recommend her site and resources.

Join the conversation

ARTICHDKE BLOG

The impact of sharing breakfast of dawn on teacher professional learning and development.

Do feed left! Best read and

http://pamhook.com/free-resources/learning-intention-generator/

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# SOLO

## FUNCTIONING KNOWLEDGE



PRESTRUCTURAL



UNISTRUCTURAL



MULTISTRUCTURAL








RELATIONAL



EXTENDED ABSTRACT

LEGO - [HTTP://WWW.FLICKR.COM/PHOTOS/33263856@N02/](http://www.flickr.com/photos/33263856@N02/)

HookED

Co-constructed Self Management Rubric					
Playground behaviours For example <ul style="list-style-type: none"> <li>- Using equipment in safe ways</li> <li>- Using kind words</li> <li>- Keeping hands and feet to myself</li> <li>- Following the rules of the game</li> <li>- Letting others play etc</li> </ul>	I need help to manage my xxxx behaviour in the playground	I can manage my xxx behaviour in the playground if I am told what to do.  <i>(can manage behaviour if directed)</i>	I use several strategies to manage my xxxx behaviour in the playground but I am not sure when and or why to use them  <i>(trial and error – aware of strategies but not sure why or when to use them so makes mistakes)</i>	I use several strategies to manage my xxx behaviour in the playground and I know when and why to use them  <i>(strategic or purposeful use of self management strategies – knows why and when)</i>	I use several strategies to manage my xxx behaviour in the playground and I know when and why to use them.  I can look around and help others to manage their xxxx behaviour in the playground  I act as a role model for others to help them manage their xxx behaviour in the playground.
Effective Strategies	<i>[insert strategies suggested by students and teachers]</i>				



What am I learning? How is it going? What do I do next?

- Home
- News
- About
- SOLO Taxonomy
- HookED Wiki
- Free Resources
- SOLO Apps
- Learning Intention Generator
- SOLO Symbol Generator
- SOLO Self Assessment Tool
- Functioning Knowledge Rubric Generator**
- Publications
- Video
- Calendar
- Contact

### HookED SOLO Functioning Knowledge Rubric Generator

This HookED app generates a SOLO Functioning Knowledge Rubric.

Insert a [functioning knowledge verb], [content] and [context] in the fields below. Then click "Generate Document" to produce your rubric.

Verb:

Content:

Context:

Example functioning knowledge verbs: plan, design, select, interview, question, collaborate, reflect, apply, listen, solve, use, mix, measure, observe, throw, share, etc.

SOLO Taxonomy: A Guide for Schools Bk 1, 2

SOLO Taxonomy and Making Meaning Bk 1, 2, 3

PAM HOOK arti\_choke

beetlebug: Here's my latest blog post. My New Year's Resolution - Gong SOLO beetlebug1.edublogs.org/?p=37 A work in progress... 7 hours ago · reply · repost · favorite

alceiung Stumbled across this post on using 'letter' to a

<http://pamhook.com/solo-apps/functioning-knowledge-rubric-generator/>

SOLO Functioning knowledge Rubric	Prestructural [Needs help]	Unistructural [Tacit - if directed]	Multi-structural [Aware - but no reasons]	Relational [Strategic—purposeful]	Extended abstract [Reflective - evaluative]
Effective strategies					



# SOLO

## DECLARATIVE KNOWLEDGE



PRESTRUCTURAL



UNISTRUCTURAL



MULTISTRUCTURAL



RELATIONAL



EXTENDED ABSTRACT

LEGO - [HTTP://WWW.FLICKR.COM/PHOTOS/33263856@N02/](http://www.flickr.com/photos/33263856@n02/)

HookED

<b>SOLO Declarative Knowledge Rubric</b>	<b>Prestruc- tural</b> [Needs help]	<b>Unistruc- tural</b> [one relevant idea]	<b>Multistruc- tural</b> [several rele- vant ideas]	<b>Relational</b> [several rele- vant connect- ed ideas]	<b>Extended abstract</b> [several rele- vant connect- ed ideas looked at in a new way]						
<b>Effective strategies</b>											

# SOLO based approaches and effective strategies

[http://pamhook.com/wiki/SOLO\\_based\\_approaches\\_and\\_effective\\_strategies](http://pamhook.com/wiki/SOLO_based_approaches_and_effective_strategies)



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## SOLO based teaching & learning strategies

What makes you say that? (visible thinking routine)

Close reading

SOLO noughts and crosses

Improving an existing answer

SOLO Stations

The "quote, context, significance, wrap-up" strategy

See-think-wonder (visible thinking routine)

Literature circles

Make your own success criteria

HOT mapping and self-assessment rubrics

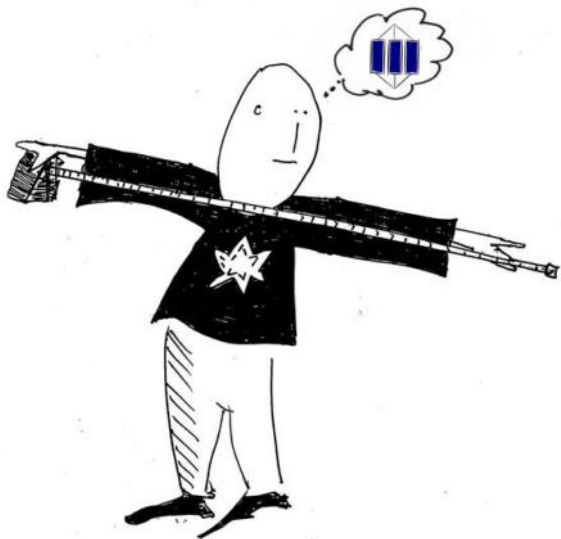
Concept mapping hexagons

SOLO hot potato

"Write your own test paper and model answers"



[http://pamhook.com/wiki/SOLO\\_based\\_approaches\\_and\\_effective\\_strategies](http://pamhook.com/wiki/SOLO_based_approaches_and_effective_strategies)



*What am I doing?*

*How well is it going?*

*What should I do next?*

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SOLO Symbol Generator  
**SOLO Self Assessment Tool**  
SOLO Planning Online  
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Video  
Calendar  
Contact

**HookED SOLO Self Assessment Tool**

This tool helps students monitor, regulate and reflect on their own task understanding.

**HookED SOLO Self Assessment Tool**

The HookED self assessment tool takes advantage of the fact that the task and the outcome can be at different levels of SOLO

It provides effective feedback to students, peers and teachers on the SOLO level of their declarative knowledge learning outcome allowing them to make smart decisions about their next steps.

For example, students and teachers can use the SOLO Self Assessment Tool to:

- clarify the purpose of the learning intention (SOLO Learning Verbs)
- explain the selection of an effective strategy (SOLO Maps)
- self assess learning outcomes with SOLO-coded success criteria (SOLO visual rubrics)
- record their "where to next" steps in learning logs

**HookED** [www.pamhook.com](http://www.pamhook.com)

<http://pamhook.com/free-resources/solo-self-assessment-tool/>

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# LI: [define] [content] [context]

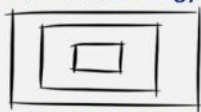
LI: **Define** the geosphere on the Planet Earth.

LI: **Define** Pythagoras' Theorem in two and three dimensions.

LI: **Define** the rights of consumers in NZ society.

LI: **Define** artwork from a Maori cultural context.

Effective Strategy:



HOT Define Map

**SOLO Learning Log:**

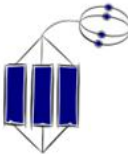
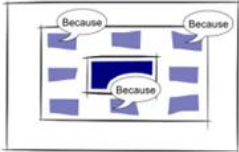

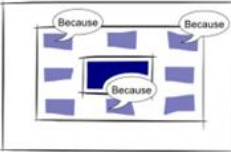

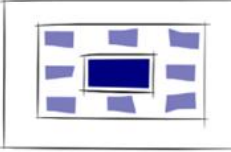

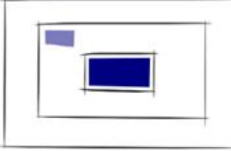

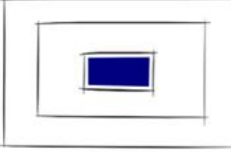
**My definition statement is at a [insert SOLO level] outcome because .....**

**My next step is to .....**

## Success Criteria for **DEFINE**

	My definition has several relevant ideas about X, links these ideas <b>and looks at them in a new way.</b>
	<i>My definition has several relevant ideas about X and links these ideas.</i>
	<i>My definition has several relevant ideas about X.</i>
	My definition has <b>one relevant idea</b> about X.
	<i>I need help to define X.</i>

# HOT Define Rubric

	<p><b>and</b> looks at these linked ideas in a new way</p>	 <p>Overall I think... because... because...</p>
	<p><b>and</b> links these ideas</p>	
	<p>My definition has several relevant ideas</p>	
	<p>My definition has one relevant idea</p>	
	<p>I need help to define [X]</p>	
<p>My learning outcome is _____ because _____          My next step is to _____</p>		

## LI: [compare & contrast] [content] [context]

LI: **Compare & contrast** the geosphere and atmosphere on Planet Earth

LI: **Compare & contrast** a parallel line with a perpendicular line.

LI: **Compare & contrast** two strategies for profit maximisation.

LI: **Compare & contrast** examples of traditional and contemporary Tuhi Whakaniko (visual art practice).

### Effective Strategy:








HOT Compare Contrast Map

### SOLO Learning Log:

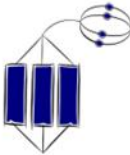
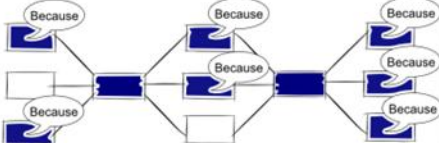

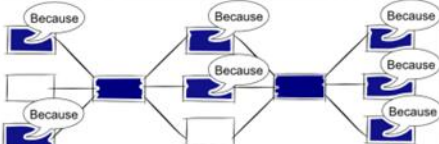

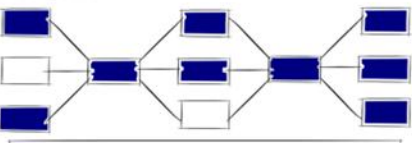

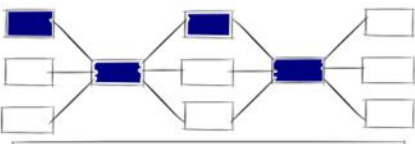

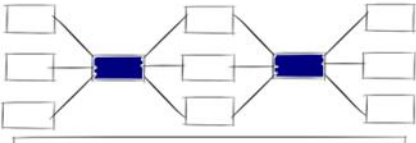
**My compare & contrast statement is at a [insert SOLO level] outcome because .....**

**My next step is to .....**

## Success Criteria for COMPARE & CONTRAST

	I can identify several relevant similarities and differences between [X] and [Y], give reasons why <b>and make a generalisation</b> (overall I think).
	I can identify several relevant similarities and differences between [X] and [Y] <b>and give reasons why.</b>
	I can identify <b>several relevant similarities and differences</b> between [X] and [Y]
	I can identify <b>one relevant similarity and difference</b> between [X] and [Y]
	<i>I can identify [X] and [Y] but I need help to compare them.</i>

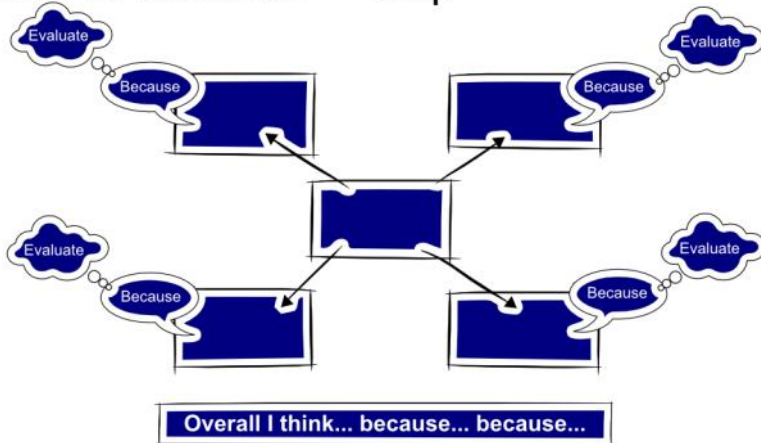
# HOT Compare Contrast Rubric

	<p>and can make a generalisation (overall I think)</p>  <p>Overall I think... because... because...</p>
	<p>and can give reasons why</p> 
	<p>I can list several relevant similarities and differences between [X] and [Y]</p> 
	<p>I can identify one relevant similarity and difference between [X] and [Y]</p> 
	<p>I can identify [X] and [Y] but I need help to compare them</p> 
<p>My learning outcome is _____ because _____          My next step is to _____</p>	



# Effective strategy

## HookED Describe++ map



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- Home
- News
- About
- SOLO Taxonomy
- HookED Wiki
- Free Resources
- SOLO Apps
  - Learning Intention Generator
  - SOLO Symbol Generator
  - SOLO Self Assessment Tool
  - Functioning Knowledge Rubric Generator
  - SOLO Hexagon Generator**
  - Publications
  - Video
  - Calendar

### HookED SOLO Hexagon Generator

This HookED app populates a SOLO Hexagon Template. Brainstorm content ideas and enter them in the fields below. Click "Generate Document" to populate the template.

Hexagon 1.

Hexagon 2.

Hexagon 3.

Hexagon 4.

Hexagon 5.

Hexagon 6.

Hexagon 7.

Hexagon 8.

Hexagon 9.

Hexagon 10.

Remove last 10 Hexagons

Add 10 More Hexagons

Generate Document

Print the template and cut out the hexagons. Ask students to arrange the hexagons in



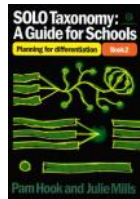
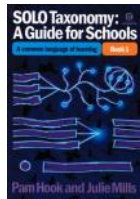
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# Pam Hook

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