



# CLIL Science Experiments for Young Learners of Japanese

*CLIL Online Seminar CLIL-ite*

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Is it possible for me to teach CLIL lessons to young learners (5-7 yrs old) who are beginner learners of Japanese with one 50-minute lesson a week?

CLIL will look different in different contexts but there are some essential ingredients:

Dual focus on both content (in my case science) and Language (Japanese). The 4cs of content, communication, cognition and culture are also essential (Coyle, Hood, Marsh, 2010).

How can I know that it really is CLIL?

Which parts of the Language (Japanese) curriculum are you addressing?

Which parts of the subject (science) curriculum are you addressing?

Look at the curriculums of the content area and Language.

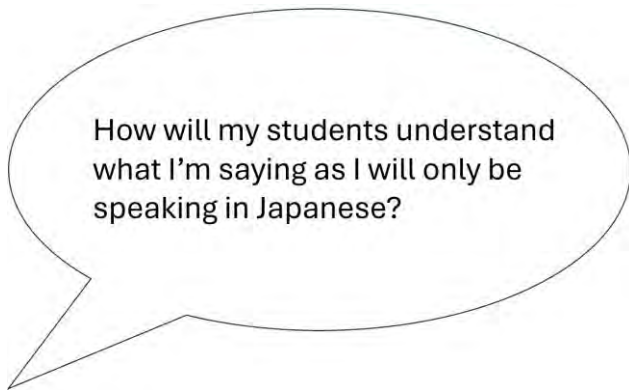
**JAPANESE: SECOND LANGUAGE – Scope and sequence P-6**

	Pre-primary	Year 1	Year 2	Year 3
<b>Notice and use context-related vocabulary to generate language</b>	Notice and use context-related vocabulary to generate language	Notice and use context-related vocabulary and some first elements of grammar to generate language for a range of purposes, including:	Notice and use context-related vocabulary and understand some first elements of grammar to generate language for a range of purposes, including:	Notice and use context-related vocabulary and apply elements of grammar in simple spoken and written texts to generate language for a range of purposes, including:
<b>Recognise some first elements of grammar, including:</b>	Recognise some first elements of grammar, including:	understanding basic word order in simple sentences, for example, noun が すき です; りんご が すき です; adjective + noun です; おおきい	indicating affirmative and negative responses using はい/いいえ; ちがいます	using verbs in ます and negative form ません
<b>understanding different levels of formality, for example, おはようございます/おはよう</b>	understanding different levels of formality, for example, おはようございます/おはよう	referring to numbers of things using cardinal numbers 0-10, for example, 一, 二, 三	using some culturally specific parallel phrases related to giving and receiving, for example, どうぞ; ありがとうございます	describing actions using verb ます form, for example, すし を たべます
<b>understanding that Japanese uses name + suffix instead of pronouns when referring to other people, for example, John くん/はなこちゃん</b>	understanding that Japanese uses name + suffix instead of pronouns when referring to other people, for example, John くん/はなこちゃん	recognising that numbers 4, 7 and 9 have more than one reading	learning to use common onomatopoeia such as へこへこ, むんむん	understanding the rules of Japanese word order (subject + object + verb), the use of associated particles は/を/と/も/に, and the use of が in formulaic expressions, for example, noun が すき です
<b>Grant せんせい building vocabulary to describe and label familiar and immediate objects and environments</b>	Grant せんせい building vocabulary to describe and label familiar and immediate objects and environments	learning to describe the colour, size and shape of things, for example, みどりです; まるい/しずかです	beginning to use counters in Japanese, for example, 一人, 一さい	understanding time words associated with days of the week, months of the year and seasons
		recognising and		

**SCIENCE – Scope and sequence P-6**

	Pre-primary	Year 1-2	Year 3-4
<b>Science as a human endeavour</b>			
<b>Nature and development of science</b>	Science involves observing, asking questions about, and describing changes in, objects and events	Science involves observing, asking questions about, and describing changes in, objects and events	Science involves making predictions and describing patterns and relationships
<b>Use and influence of science</b>		People use science in their daily lives, including when caring for their environment and living things.	Science knowledge helps people to understand the effect of their actions
<b>Science inquiry skills</b>			
<b>Questioning and predicting</b>	Pose and respond to questions about familiar objects and events	Pose and respond to questions, and make predictions about familiar objects and events	With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge
<b>Planning and conducting</b>	Participate in guided investigations and make observations using the senses	Participate in guided investigations to explore and answer questions	With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment
<b>Processing and analysing data and information</b>	Engage in discussions about observations and represent ideas	Use a range of methods to sort information, including drawings and provided tables through discussion, compare observations with predictions	Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends
<b>Evaluating</b>		Compare observations with those of others	Compare results with predictions, suggesting possible reasons for findings
<b>Communicating</b>	Share observations and ideas	Represent and communicate observations and ideas in a variety of ways	Represent and communicate observations, ideas and findings using formal and informal representations

JSL Scope and Sequence and Science Scope and Sequence available at <https://scsa.wa.edu.au>



Accurate but simple language that can be used in different contexts

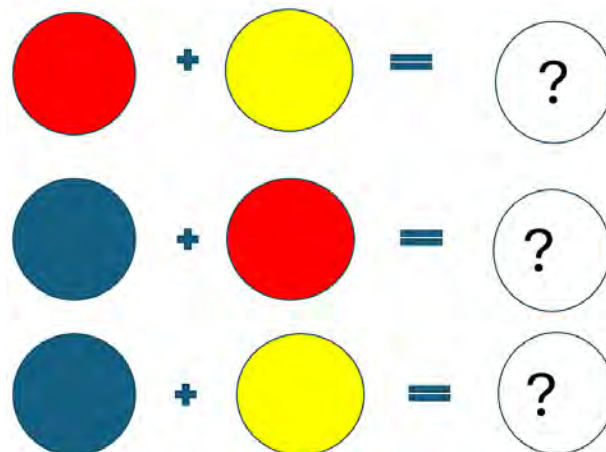
Use of repetition of vocabulary and grammar

Make the language comprehensible with visuals, shuwa (Japanese sign language) for key language and body language

Create CLIL scripts of the key language for leading the science activities

**Science Experiments Overview**

Kindy 3-4 yr old	Pre primary 5-6 yr old	Yr 1 6-7 yr old	Yr 2 7-8 yr old	Yr 3 8-9 yr old	Yr 4 9-10 yr old
1x 50 min lesson every fortnight		1x 50 min lesson each week			1x 30 min lesson each week
Colour mixing	Skittles (coloured candy) Experiment				Does the vegetable grow above or below the ground?
Paint mixing and water colour play	Exploding Milk Experiment				Parts of a plant
	Walking Water Experiment				Parts of the vegetable plant that we eat
					Vegetable cut offs in water Experiment



**Script**

あか と きいろで なにいろ ですか。  
 あか と きいろで オレンジ です。  
 あお と あかで なにいろ ですか。  
 あお と あかで むらさきです。  
 あお と きいろで なにいろ ですか。  
 あお と きいろで みどり です。

.....  
 .... でしょう。  
 ちゃいろ でしょう。

**Translation**

What do red and yellow make?  
 Red and yellow make orange.  
 What do blue and red make?  
 Blue and red make purple.  
 What do blue and yellow make?  
 Blue and yellow make green

.....  
 I think it will be ....  
 I think it will be brown (used when the teacher would recast things the students said in English into Japanese)



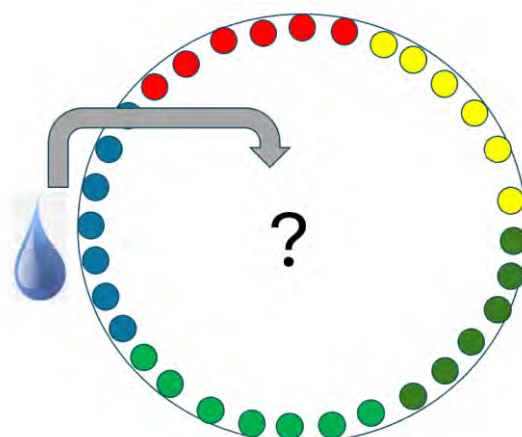
**Skittles Colour Experiment**

**WAC Yr 1 Science**

**Science Inquiry Skills**  
**COMMUNICATING**  
 Represent and communicate observations and ideas in a variety of ways

**WAC Yr 1 Japanese**

**Communicating**  
**INFORMING**  
 Convey factual information about their personal worlds using pictures, labels, captions, familiar words and simple statements  
**SYSTEMS OF LANGUAGE**  
 learning to describe the colour, size and shape of things



**Script**

おさらで いろキャンディー で まるを つくりました。  
 あか、きいろ、オレンジ、みどり と むらさきです。  
 おみずを 入れたら どうなりますか。  
 じっけんを しましょう。  
 .....  
 にじいろ です。  
 キャンディーが とけて いろが でてきます。  
 ちゃいろく・オレンジに になりました。  
 かみで けっかを かいてください。

**Translation**

I have made a circle on the plate with coloured lollies.  
 Red, yellow, orange, green and purple.  
 What do you think will happen if we add water?  
 Let's do the experiment.  
 .....  
 It's a rainbow of colours.  
 The lollies melted and the colour came out.  
 It became brown/orange.  
 Please draw the result on your paper.



## Exploding Milk Experiment

### Exploding Milk Experiment

#### WAC Yr 2 Science Science Inquiry Skills

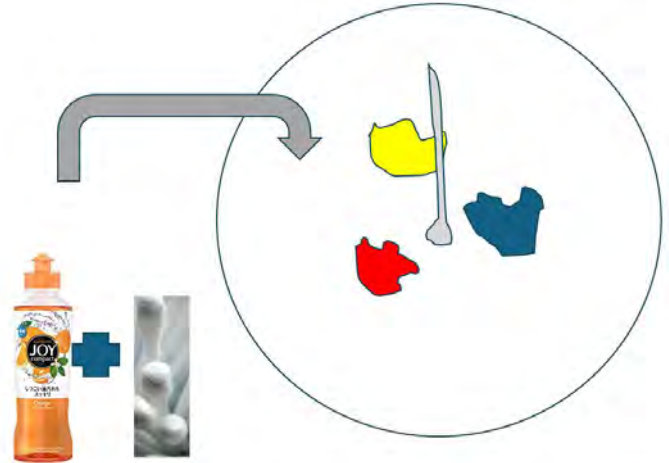
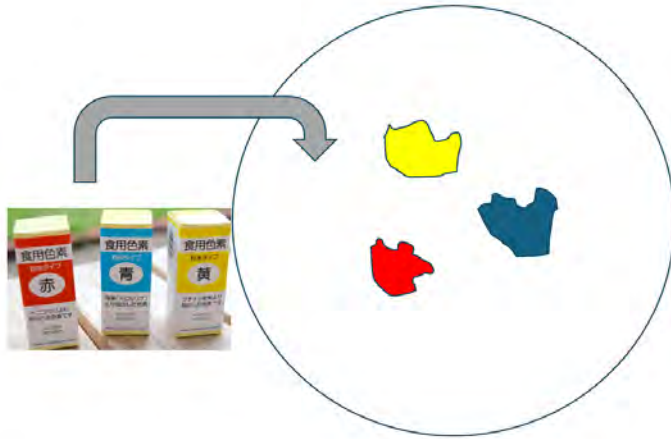
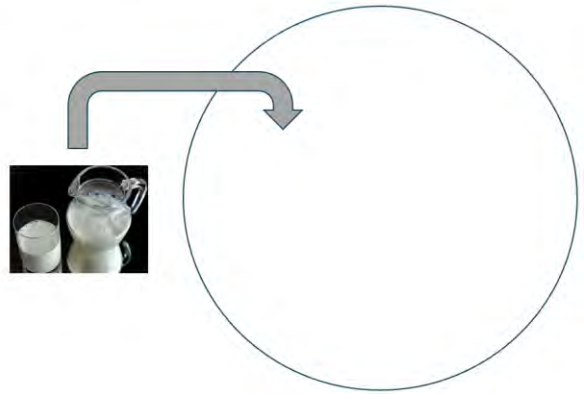
##### QUESTIONING AND PREDICTING

Pose and respond to questions, and make predictions about familiar objects and events

#### WAC Yr 2 Japanese Communicating

##### SOCIALISING

Participate in guided group activities and simple tasks...using simple, repetitive language  
Respond to teacher talk and instruction



#### Script

おさらに ミルクを います。

いろづけを します。

あか、あお、きいろ

みみかきで せんざいを います。

いれたら どうなりますか。

.....

みるくは みずと あぶらです。

せんざいは みずと あぶらを わけます。

わけるとき うずまきます。

いろは まざります。

#### Translation

Put milk on the plate.

Add in food colouring.

Red, blue, yellow.

Put the cotton tip in detergent.

What will happen if we put it in the dish?

What is your prediction?

.....

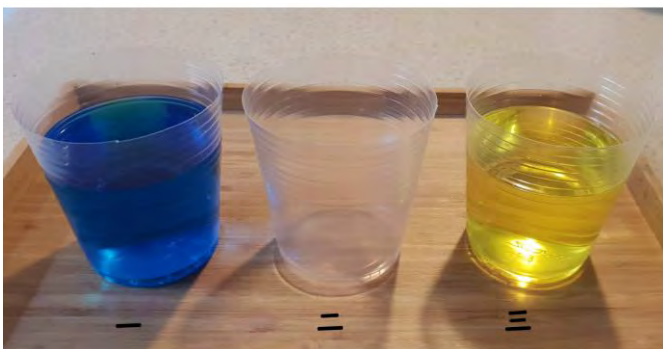
Milk has both water and fat in it.

The detergent separate the milk and fat

When it separates it swirls.

The colours mix around.

### Walking Water Experiment





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Demonstrations of the above experiments can be found here:

<https://www.science-sparks.com/skittles-experiment/>

<https://www.beardedscienceguy.com/post/the-magic-milk-experiment-a-dance-of-color-and-chemistry-for-kids>

<https://www.beardedscienceguy.com/post/walking-water-experiment>

.....

いろいろな やさいくずを みずにつけると、どうなりますか。

**What would happen if we put vegetable cutoffs in water? Yr 3**

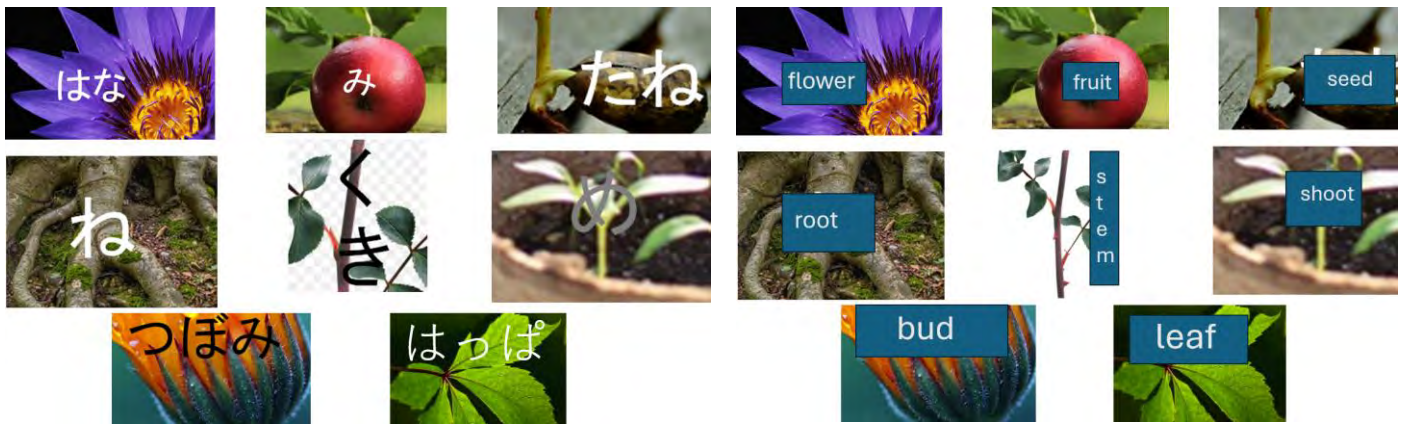


Collaborative CLIL Project 2017

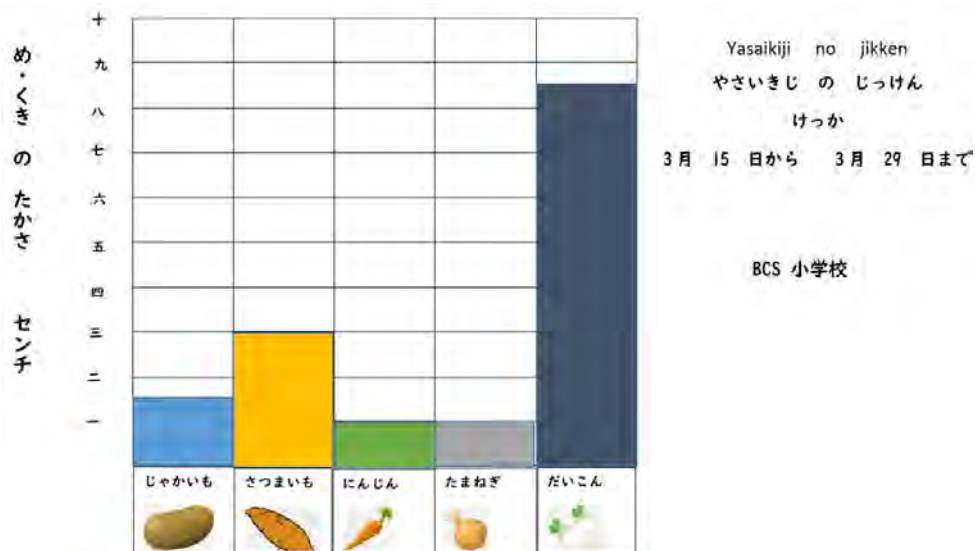
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*Treetops Montessori School*







Graph of the results of Growing Vegetable Cutoffs in Water Experiment



## Top tips for starting out

- \*Start with looking at the curriculum for Science but also Japanese SL – remember it's a dual focus (we want the science concepts but also language development)
- \*Collaborate where possible – with the classroom teacher, a native speaker assistant if needed, someone that has knowledge on CLIL or another Languages teacher who you could plan lessons with
- \*Start small – maybe with just one lesson or activity
- \*consider writing a script for the instructional language that you will use. For native speakers this can ensure you use simple enough language, for non native speakers you may like to check the language with a native speaker for accuracy and confidence.
- \*Remember that 'cognition' is important – it's not just telling the students facts. You want them to be working out the learning for themselves
- \*Hands on activities help to consolidate the learning and enhance engagement
- \*Clear visuals are very important for helping students learn new vocabulary and to help them focus.

## **Useful resources if you are starting out with CLIL**

