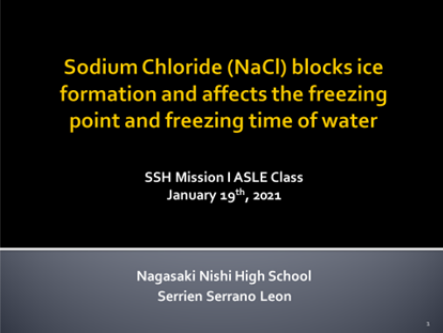
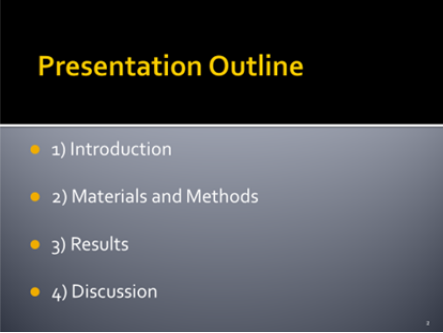


R3 MI ASLE ~ How to give a Science English Presentation

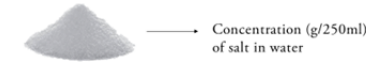
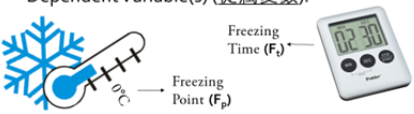
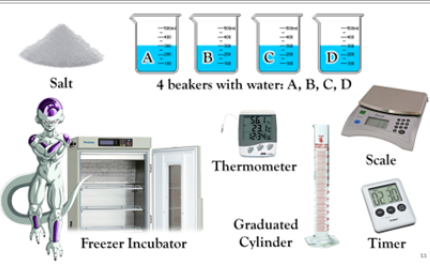
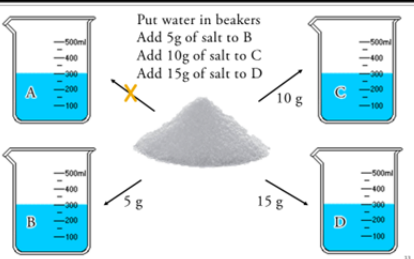

Example: “Sodium Chloride blocks ice formation and affects the freezing point and freezing time of water.”

科学研究発表における英語プレゼンテーション

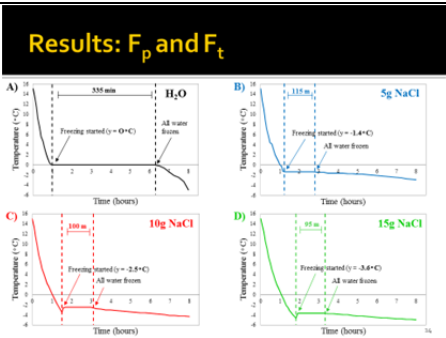
「塩化ナトリウムは氷の形成を妨げ、凝固点と凝固時間に影響を与える」を例にして、英語プレゼンを学ぶ」

挨拶		<p>御紹介ありがとうございます。皆さんおはようございます。</p> <p>Thank you.</p> <p><u>Good morning, ladies and gentlemen.</u></p> <p>☆ Other useful phrases (挨拶)</p> <ul style="list-style-type: none"> • Hello/Hi/Hey everyone • Good morning/afternoon students
ス ラ イ ド 1	 <p>Phenomena 現象(複数形) Sodium Chloride 塩化ナトリウム Formation 形成 Affect 影響を及ぼす Freezing Point 凝固点 Freezing Time 凝固時間</p> <p>タイトルページに記入する項目(上から)</p> <ol style="list-style-type: none"> ① Title プレゼンのタイトル ② Name of event 学会名 ③ Presentation Date 発表の日 ④ Name of school 発表者の所属 ⑤ Presenter(s) name(s) 発表者名 	<p>(タイトルページで、発表を始めるとき)</p> <p><u>Today, I will be talking about</u> an interesting phenomena between Sodium Chloride (NaCl) and water (H₂O)</p> <p>Sodium Chloride is the common salt that we use for food.</p> <p>In this study, I found that salt can block ice formation and affect the freezing point and freezing time of water</p> <p>Now, I will explain in detail.</p> <p>☆ Other useful phrases (これから～について話をします)</p> <ul style="list-style-type: none"> • I'm going to talk about... • The topic today is... • My presentation today is about... • I will be presenting about... • Today, I'm going to present about...
ス ラ イ ド 2	 <p>Introduction 導入 Materials and Methods 材料と方法 Results 結果 Discussion 議論・論議</p>	<p>(プレゼンのアウトライン:このまま使える)</p> <p><u>In this presentation, first I'm going to introduce the topic and explain some information.</u></p> <p>Then, I will show you the Materials and Methods.</p> <p>After that <u>I will share with you some of the results.</u></p> <p>Finally, <u>I will make a summary and talk about the conclusions and future plans in the discussion.</u></p>

ス ラ イ ド 4	<p>temperature 温度 observation 観察 Research Question 研究の疑問</p>	<p>(研究の疑問を抱いた背景になる観察) In some countries (Canada), it can get very cold in the winter – under the freezing point of water (0°C). One winter I observed that lakes would freeze in the winter and oceans would not! This was my <u>observation</u> (リサーチクエスションの設定) Based on the <u>this information</u>, I wondered why lakes froze faster and at higher temperatures than oceans</p>
ス ラ イ ド 5	<p>ions イオン Saltwater 塩水 Freshwater 淡水 However しかしながら (プレゼンでは but より意味が弱く形式ばった語として、よく使われる)</p>	<p>(研究の背景と目的を述べる) To gather some more information, I did some extra research and studied the difference between lake and ocean water. <u>I found that</u> ocean water contains Na⁺ ions and Cl⁻ ions. It is saltwater <u>However, I did not know</u> how this affected water. ☆ Other useful phrases • It is known that... (...のことが知られています) • A number of studies show... (多くの研究が...を示している)</p>
ス ラ イ ド 6	<p>Increase 増加する Concentration 濃度 freeze 凍結する 凝固する</p>	<p>(仮説の説明) <u>Therefore</u>, I made 2 <u>hypotheses</u> from my question. Hypothesis 1 was, “If I increase the concentration of salt in water, then it will freeze at a lower temperature” したがって... の言い方にはいくつかある。 so, therefore, for this reason, accordingly, consequently,</p>
ス ラ イ ド 7	<p>experiment 実験</p>	<p>(仮説の説明) Hypothesis 2 was, “If I increase the concentration of salt in water, then it will take longer to freeze.” Based on these hypotheses, we did an experiment to test the effects of salt on water</p>

ス ラ イ ド 8	<p>Variables</p> <ul style="list-style-type: none"> Independent Variable (独立変数):  Dependent Variable(s) (従属変数):  <p>Independent Variable 独立した変数 = 処理条件</p> <p>Dependent Variable 従属した変数 = 測定値・実験結果</p> <p>Control Variables (Scientific constant) 制御された変数 = 科学的定数 全ての実験系においてそろえられた条件</p>	<p>(変数の説明)</p> <p>The independent variable for my experiment is the concentration of salt in water (in grams per 250 milliliters)</p> <p>The dependent variables are:</p> <ul style="list-style-type: none"> ➤ Freezing Point (F_p) and Freezing Time (F_t) <p>And my control variables are everything else in my experiment</p> <p>☆ Other useful phrases (研究の背景を述べる)</p> <ul style="list-style-type: none"> • What we change is... (...我々が変えるものは) • What we measure is... (...私たちは何を測定しています) • Some things that never change are... (...変化しないものは何です) 																
ス ラ イ ド 10	<p>Materials:</p>  <p>Scale はかり 電子天秤</p> <p>Graduated Cylinder メスシリンダー</p> <p>Thermometer 温度計</p> <p>Incubator 恒温装置 孵卵器</p>	<p>(実験器具・材料の紹介)</p> <p>For my experiment, I will use these materials:</p> <ul style="list-style-type: none"> ➤ Salt to make the saltwater ➤ 4 beakers: A, B, C and D. ➤ Scale to weigh the salt ➤ Graduated cylinder to measure the water ➤ Timer and thermometer ➤ Freezer Incubator 																
ス ラ イ ド 11	<p>Methods: F_p and F_t</p>  <p>Control group 対照実験群</p> <p>Treatment Group 処理実験群</p>	<p>(実験方法の説明)</p> <p>In order to check hypothesis 1 and hypothesis 2, I put 250ml of water into all 4 beakers.</p> <p>Group A had no salt in it (control group). I added 5g (grams) of salt in B, 10g in C, and 15g in D (treatment groups)</p> <p>☆ Other useful phrases</p> <ul style="list-style-type: none"> • To test the hypothesis... (仮説を検証するために、...) 																
ス ラ イ ド 12	<p>Methods: F_p and F_t</p> <table border="1" data-bbox="167 1780 311 2027"> <thead> <tr> <th colspan="2">Times</th> </tr> </thead> <tbody> <tr><td>9:00</td><td>9:45</td></tr> <tr><td>9:05</td><td>9:50</td></tr> <tr><td>9:10</td><td>9:55</td></tr> <tr><td>9:15</td><td>10:00</td></tr> <tr><td>9:30</td><td>10:15</td></tr> <tr><td>9:35</td><td>...</td></tr> <tr><td>9:40</td><td>16:30</td></tr> </tbody> </table>  <p>Freezing point 凝固点</p> <p>fully 完全に</p> <p>Freezing Time 凝固時間</p>	Times		9:00	9:45	9:05	9:50	9:10	9:55	9:15	10:00	9:30	10:15	9:35	...	9:40	16:30	<p>(実験方法の説明)</p> <p>For my experiment, I put all 4 beakers into the freezer incubator at -10C and observed if the:</p> <ul style="list-style-type: none"> ➤ water had started to freeze, ➤ water was freezing, or ➤ water was fully frozen <p>I want to find out at the freezing point and the freezing time</p>
Times																		
9:00	9:45																	
9:05	9:50																	
9:10	9:55																	
9:15	10:00																	
9:30	10:15																	
9:35	...																	
9:40	16:30																	

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results 結果
 x-axis x 軸 縦軸
 represents 表す
 degrees Celsius 摂氏 °C
 y-axis y 軸 横軸
 approximately おおよそ 約
 lastly 最後に

(グラフの見方の説明 - 実験結果の説明)

These are the results of my experiment:

The X-axis represents the water temperature in degrees Celsius.

And the Y-axis represents time in hours.

Each graph is a different group (A, B, C, D)

☆ Other useful phrases 縦軸・横軸が示す内容を説明する言い方

- The horizontal/vertical axis represents...
- The X/Y axis shows...
- On the X/Y axis, we see/have...

(グラフから読み取れることの説明)

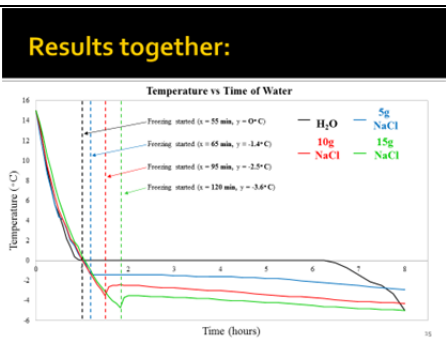
So, **A** started freezing in approximately 60 minutes and took 335 min for all the water to freeze. The temperature when it started to freeze was 0°C

B started freezing 10 min after A and took only 115 min for it to freeze completely. The temperature was -1.4°C when it started to freeze

C started freezing after 95 min and took 100 min to freeze completely. The temperature was -2.5°C when it started to freeze

And lastly, **D** started freezing at about 115 min and only took 95 min to freeze completely. The temperature was -3.6°C when it started to freeze

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Clearly 明確に
 Pre 前の
 pre-freezing time 凝固点に達する前
 overall 全体の





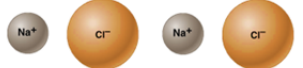
(実験結果の説明)

This second graph is the same as the last one but all together.

From these two graphs, we clearly see that it took longer for the water to start freezing and that the temperature was lower.

☆ Other useful phrases

- The following results account from... (次の説明は...の結果得られたものである)
- The/these results show...(この結果は...ことを示している)

ス ラ イ ド 17	<p>Summary</p> <ul style="list-style-type: none"> The saltwater groups B (5g), C (10g), and D (15g) had lower freezing points (F_p) than freshwater (A) <ul style="list-style-type: none"> Hypothesis 1 is correct!  Freezing times were observed, however saltwater B, C, and D: <ul style="list-style-type: none"> Took longer to start freezing (Pre-F_t) and, Froze faster after it had started freezing (F_t) Hypothesis 2 is ... (correct/incorrect?)   <p>summary まとめ collected 得られた correct 正しい Based on ~ ~に基づく</p>	<p>(結果のまとめと考察)</p> <p><u>Now I will give a summary</u> of the data collected: The saltwater groups had lower freezing points! Our first hypothesis was correct!</p> <p>We also observed freezing times, but,</p> <ul style="list-style-type: none"> The saltwater groups took longer to start freezing (longer Pre-F_t) and, It froze faster after it had started freezing, so it had a shorter freezing time (F_t)! <p>Based on my results, is my second hypothesis correct?! Did the water freeze slower? Let's look again!</p> <p>☆ Other useful phrases</p> <ul style="list-style-type: none"> Let me summarize my talk. (話のまとめをさせていただきます) The summary is as follows... (サマリーは、以下の通りです)
ス ラ イ ド 18	<p>Freezing Time (F_t) Hypothesis</p> <ul style="list-style-type: none"> If I increase the concentration of salt in water, then it will take longer to freeze.  <ul style="list-style-type: none"> Water with salt in it took longer to start freezing. Water with salt in it froze faster after it had started freezing. <p>Hypothesis 2 is not specific enough!</p> <p>Specific 明確に 詳しく Actually 実際のところ</p>	<p>(結果に基づき、仮説が正しいかどうか分析する)</p> <p>My 2nd hypothesis was “if I increase the concentration of salt in water, then it will take longer to freeze.”</p> <p><u>Actually</u>, we saw that the water took longer to start freezing and that it froze faster after it had started freezing! This can be separated into two parts: Pre-F_t and F_t.</p> <p>So my hypothesis was not wrong or right. It wasn't specific enough!</p>
ス ラ イ ド 19 20	<p>Conclusion: Lower F_p/Longer Pre-F_t</p> <ul style="list-style-type: none"> Salt ions (Na^+ and Cl^-) block the formation of ice by getting in the way of H_2O molecules  <ul style="list-style-type: none"> This is called Freezing Point Depression 凝固点降下 (ぎょうてんこうか) <p>In conclusion 結論として block 阻止する formation 形成 molecule 分子 conclude 結論を下す</p>	<p>(結論)</p> <p><u>In conclusion</u>, the salt ions in the water block the formation of ice by getting in the way (じゃま) of the water molecules.</p> <p>This is why salt water:</p> <ul style="list-style-type: none"> Has a lower freezing point (F_p) and, takes more time to start freezing (Longer Pre-F_t) <p>☆ Other useful phrases (結論)</p> <ul style="list-style-type: none"> These data lead us to the conclusion that... (これらのデータから...という結論に我々を導く) The results led us to conclude that... (その結果から、...のように結論づけることができる)

ス ラ イ ド 21		(結論) This is my guess for why the saltwater froze faster: ➤ Ice needs to find a <u>place</u> (core) to start freezing. When Na^+ and Cl^- are in the water, they join with water molecules and make these shells Maybe these shells can act as <u>more</u> places for ice to form. As a result, maybe ice forms faster!
ス ラ イ ド 22		(将来計画) As the next step, I will <u>investigate</u> how waves affect the F_p . <u>This finishes my presentation.</u> <u>Thank you for listening!</u> ☆ Other useful phrases • For next time, we... • In the future, we... • As our next experiment, we ...
ス ラ イ ド 23		(質問) Does anyone have any <u>questions</u>? ☆ Other useful phrases • Do you have any questions? • Is there anything I can explain again? • Who wants to ask us a question? • Who would like to ask a question first?