

教科・科目	学校設定科目	授業タイトル	iC アカデミックイングリッシュ (iCAE)
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授業の内容

対象：1年生 理数科

形態：外国人講師3名、英語を話せる日本人講師1名、理数系の教諭1名による講義及び実習

概要：科学技術イノベーションを担う人材の育成を目的として設置された、一宮高校独自の科目です。全世界で発行される科学系論文の80%以上が英語で書かれており、国内でも半数以上は英語で執筆・発表されています。今や理系の道に進むに当たっては、英語の読み書きだけでなく質疑応答が行える能力も必須と言えます。本授業はそれらの技能を習得するため、外国人講師を中心にほぼ全て英語で行っています。

授業：英語での科学系学会用ポスターの作り方やプレゼンテーションの基礎、データの取り方とまとめ方の基礎などを学習します。グループ毎に取ったデータをグラフ化し、それを元にポスターを作成して発表します。2年次に行う課題研究、ひいては大学での研究活動に直結する内容ということもあり、生徒達はとても積極的に参加しています。

写真 または 動画

About the Time for Cup Noodles to Extend
 Introduction: We wanted to find out the water absorb point per cup noodle. Therefore, we will make a presentation based on the subject about time for cup noodle to extend.
 Theory: Ramen noodles extend because noodles absorb water. Noodles are made with wheat flour, so they absorb water.
 Method: Check the remaining amount of soup per passed time. Preserve the amount of water absorbed by the noodles by time. The amount of hot water to be thrown is 430 grams. The time is 0min, 3min, 10min and 30min.
 Result: A line graph showing water absorption of noodles (g) vs. timing time (min). The absorption increases from 0g at 0min to approximately 300g at 30min.
 Conclusion: Cup noodles absorb water rapidly in about 3 minutes. Then slowly absorb the water.

Frictional Heat of Liquids
 Introduction: Do you know that shaking the liquid will increase its temperature? Actually, shaking the liquid will increase the temperature. We were interested in two things, so we decided to do this study. The two things are whether it depends on how much liquid and whether it depends on how many times you shake.
 Hypothesis: The more the liquid is shaken, the more the temperature rises and it has proportional relationship. We think low viscosity liquid is higher temperature than high viscosity liquid. Because we think low viscosity liquid is easy to be mixed.
 Method: Shake water, acetone, oil, or green liquid (put in a 200ml plastic bottle). Shake these liquids 300 times. One time is one round trip between 15cm. Experiment with liquid and 300cm.
 Result: A bar chart comparing temperature rise for water, acetone, oil, 20ml, 100ml, 150ml, and 200ml. Water shows the highest temperature rise, followed by acetone and oil. Higher volumes result in higher temperature rises.
 Conclusion: After an experiment, the oil had less difference than before experiment. The temperature of oil is higher than that of water because the specific heat of water is higher than that of oil. However, because oil has low thermal conductivity, we thought that the heat generated by friction was not transmitted and the temperature was low. Should quantify increase as a lot of frictional heat occurred. But, we thought the temperature did not change because the heat capacity increased.

About Measures Against Typhoon-Caused Damage
 Introduction: Even if a typhoon approaches, the wind becomes strong with almost no change in its direction.
 Hypothesis: I think that we should inform people about typhoons earlier and urge them to evacuate.
 Method: Search on the reliable internet.
 Result: A bar chart showing the number of typhoons per year from 2001 to 2010. The number of typhoons fluctuates between approximately 10 and 20 per year.
 Conclusion: Typhoons often cause damage to the earth. If ten typhoons is so, so we need disaster prevention for the typhoons. To reduce damage even a little.

