KVIS-ISB
Student Research Collaboration Program

Turning Science Students into Student Scientists

Min Medhisuwakul, Ph.D.
Kamnoetvidya Science Academy

Jonathan Eales, Ph.D.
International School Bangkok
Kamnoetvidya Science Academy

- Founded by PTT
- Nurture creative, innovative young scientists
- Based on Thai curriculum
Kamnoetvidya Science Academy

Well-equipped laboratories with instruments and research atmosphere

High-speed camera  Infrared camera

Automated data collecting systems
Kamnoetvidya Science Academy

Original research in a cooperative working atmosphere
Kamnoetvidya Science Academy

Students encouraged to build apparatus for their research

Supporting facilities

- Machine shop
- Electronics
- Microcontroller
Kamnoetvidya Science Academy

Keys to success

- Teachers
- Students
- Equipment and atmosphere
- Process
- Class discussion
- Text reading and homework
- Labs
How does the depth of a puddle affect the bounce of a basketball?
**Bounce of a Basketball in a Puddle: Depth of Water and Coefficient of Restitution**

Chankyu Han  
*International School Bangkok,*

**Abstract**

A basketball was dropped into puddles with depths of water ranging from zero to 4 mm from a height of 1.1 m to investigate the relationship between the depth of water in a puddle and the coefficient of restitution with measurements of the drop height and bounce height. It is shown that the coefficient of restitution has a square root relationship with the depth of the puddle. A "puddle constant" is defined and found for this drop height and this ball to be 830 kgm².

**Keywords:** basketball, water depth, coefficient of restitution
Program Objectives

• Increase skills in conducting scientific research
• Collaborate with scientists from different backgrounds
• Gain confidence in ability to make scientific discoveries
• Experience the review and publishing process
• Improve scientific writing skills
KVIS-ISB Student Research Collaboration Program

Program participants selected
- 5 groups
- Each group: 2 M4 KVIS students & 2 Gr12 ISB students

Groups introduced (Online)
- Research and develop possible Research Topics
# KVIS-ISB Student Research Collaboration Program

## PROGRAM TIMELINE

<table>
<thead>
<tr>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sept 16-17</strong>&lt;br&gt;Sat-Sun, 9-15h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Research topics finalized and approved
- Experimental apparatus designed and tested
- Sample data collected and analyzed
KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September

Sept 23-24
Sat-Sun, 9-15h

- Data collection completed
- Initial data analysis
- Results compiled
KVIS-ISB Student Research Collaboration Program

**PROGRAM TIMELINE**

- September
- October
- November
- December

Sept 25-Nov 17
Group work online

- Data analysis completed
- Theory and models developed and tested
- Results presentation developed
Analysis discussed with advisors

Paper drafted and reviewed by advisors

Paper submitted for Journal review
Authors received Reviewer feedback
Authors of accepted papers worked with Journal Editor to address Reviewer suggestions
Revised paper reviewed for final approval and publication.
1. Participants experienced in the scientific process
2. Strong writing ability in the target language
3. Adequate equipment and supplies available
4. Institutional support
1. Improve and expand the SRC program to establish a culture of research and publication at KVIS

2. Establish SRC programs between KVIS and other schools

3. Establish *Thai Scholastic Journal of Science*

4. Work with schools directly to establish Student Research and Publishing Programs
Contact & Resources

Dr. Min Medhisuwakul, KVIS
min.m@kvis.ac.th

Dr. Jonathan Eales, ISB
jonathae@isb.ac.th

www.StudentScientists.org
• Copy of this Presentation
• Resources on establishing Student Research and Publishing Programs

www.ISJOS.org
• Website of the International Scholastic Journal of Science
• Contact: Editor@isjos.org

Thank You!
Questions or Comments?