

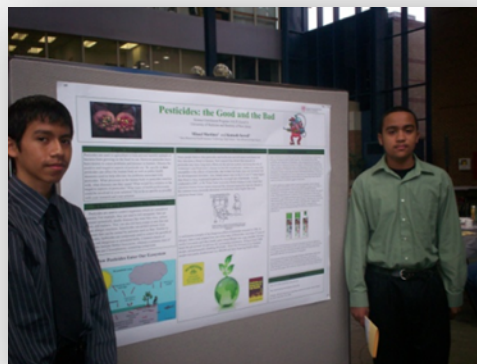
OFFERING APPLIED LEARNING PROJECTS



BTE- NEW BRUNSWICK, NEW JERSEY

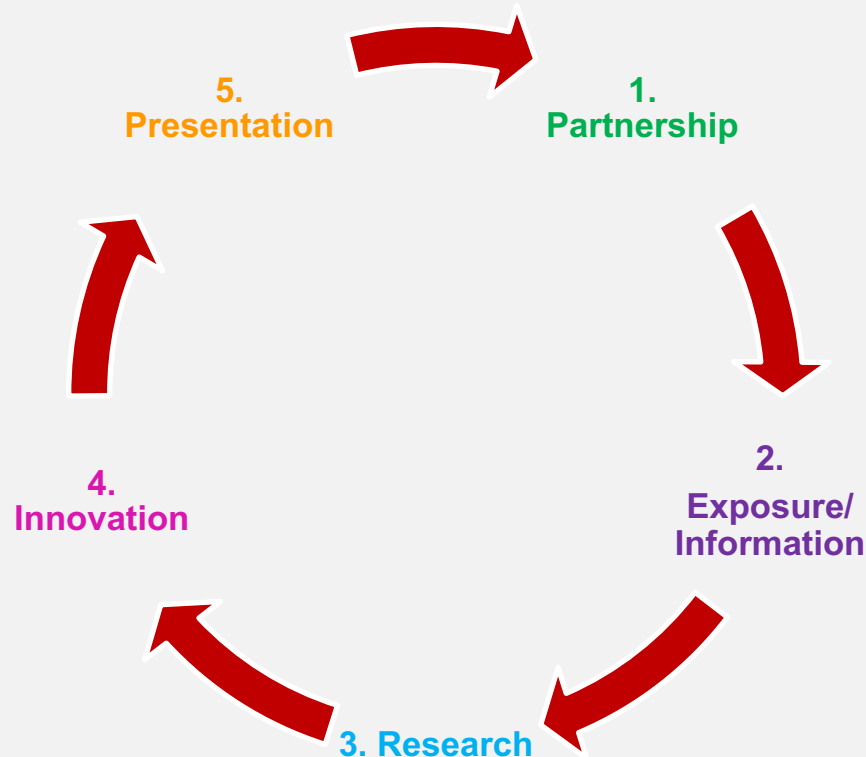
WHAT IS AN APPLIED LEARNING PROJECT (ALP)?

- **Yearlong, team-based** project designed to introduce students to research, STEM professions, and the sciences.
- In previous years, BTE- New Brunswick has implemented ALP's on the following topics:
 - Marine Science
 - Parasitology
 - Nutrition



ALP COMPONENTS:

- In 2014-2015, our BTE cohort engaged in an ALP that focused on **Product Development**.
- The ALP consisted of **5** Main Components:



COMPONENT 1- PARTNERSHIP:

- A **connection** was made with one of the New Jersey based Johnson & Johnson lab sites based out of Skillman, NJ.
- Discussions were held to see what **learning opportunities** were available for high school students ages 14-15
 - It was agreed that targeting Product Development (PD) would be a diverse project topic that students could gain insights regarding J&J, research, and the variety of STEM-related professions.
- A **small committee** was formed between the BTE Site Coordinator, New Brunswick Champion, & Volunteer Program Manager to discuss the logistics and expectations of the actual project component.



THE PLAN:

- ✓ Campus visit to Skillman site
 - ✓ Presentation on PD (highlighting key areas)
 - ✓ Hands on learning activity related to PD
 - ✓ Tour of Skillman lab
 - ✓ Mini Information Sessions/ Q & A
 - ✓ Survey
- ✓ ALP Syllabus
 - ✓ Description of ALP
 - ✓ PD Role Assignments
 - ✓ Breakdown of due dates
- ✓ Follow-Up Visit to Skillman
 - ✓ Collaborate with Skillman facilitators
- ✓ New Generation Prototype Preliminary Presentation
 - ✓ Teams presented to BTE Committee & Lab Representative
- ✓ ALP Practice Sessions
 - ✓ Rehearsals at Johnson & Johnson WHQ
- ✓ ALP Presentations

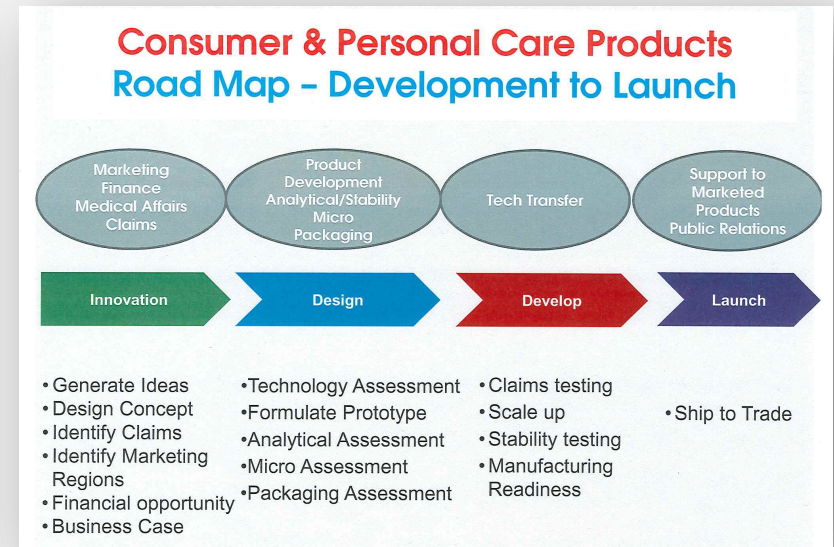


CAMPUS VISIT TO SKILLMAN- NOVEMBER 2014

- Part 1: Presentation on PD & various PD roles



Presentation delivered by J&J employees and lab specialists



PD Road Map Handout

CAMPUS VISIT TO SKILLMAN

- Part 2: Hands-on Learning Activity



Students learn about chemical structures of lotion

CAMPUS VISIT TO SKILLMAN

- Part 2: Hands-on Learning Activity



CAMPUS VISIT TO SKILLMAN

- Part 3: Tour of Skillman Lab
- Part 4: Mini Information Sessions/ Q & A

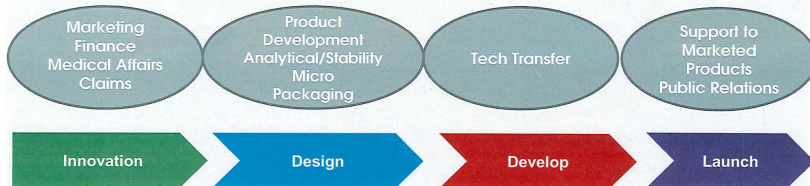


- Part 5: Survey

CAMPUS VISIT TO SKILLMAN

Handouts

Consumer & Personal Care Products Road Map – Development to Launch



- Generate Ideas
 - Design Concept
 - Identify Claims
 - Identify Marketing Regions
 - Financial opportunity
 - Business Case
- Technology Assessment
 - Formulate Prototype
 - Analytical Assessment
 - Micro Assessment
 - Packaging Assessment
- Claims testing
 - Scale up
 - Stability testing
 - Manufacturing Readiness
- Ship to Trade

Personal Care Products Industry Functional Groups - Roles & Responsibilities



Global Communications

Global Communication & Public Affairs drives communication strategies that improve health outcomes, bolster the reputation of a company, bring to life the innovative solutions, and strengthen key customer engagement and trust.

Platforms

The Innovation Platforms group is responsible for developing new product technologies through identifying biological targets, screening prototypes for efficacy, and developing new methods for demonstrating clinical benefits of products.

Product Development

Product Development leads the formulation development for consumer healthcare, baby care, and beauty/skin care products that address the needs of consumers as well as health care professionals and incorporates the latest innovations

Packaging Engineering

It is the role of a packaging engineer to make sure that we get the product to the customer in the most practical, safest way.

Medical Affairs

Medical Affairs designs the testing strategy to establish product efficacy for all products and ensures that there is support for all consumer facing claims.

Stability – Analytical & Microbiological

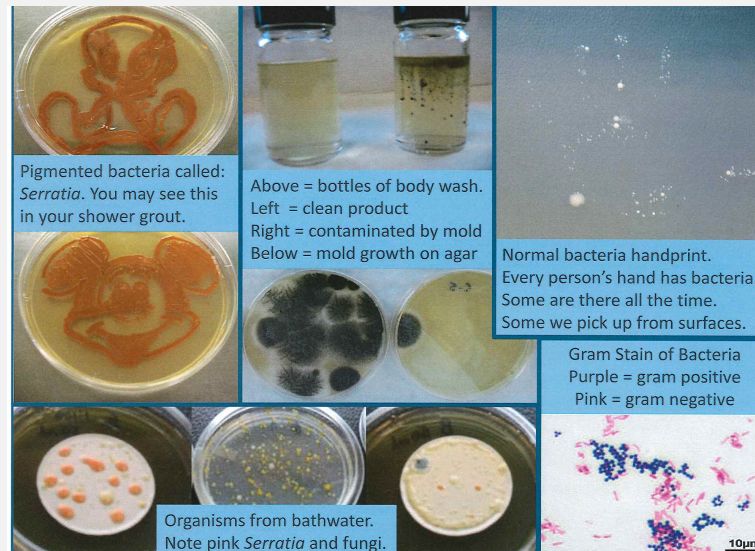
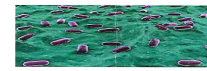
The purpose of Analytical/Microbiological Stability is to evaluate product against a specific set of physical/chemical/microbiological criteria in order to assess how product quality varies with time and under the influence of a variety of environmental conditions (temperature, humidity, freeze/thaw, light and microorganisms).

Tech Transfer

Tech Transfer takes new formula innovations from the lab scale to full production scale (e.g. 1 L to 38,000 L). We use scientific principles to troubleshoot technical problems and investigate manufacturing failures, always while ensuring the final product that is launched is of the highest quality. This is all done while maintaining speed-to-market so that product launch timings line up with current market trends.

Support to Marketed Products

Provides innovative and technical solutions to improve marketed products' profitability and benefits to consumers (e.g., reducing cost of goods, enhancing claims, optimizing processes, insuring reliable product supply to customers).



Pigmented bacteria called: *Serratia*. You may see this in your shower grout.

Above = bottles of body wash.
Left = clean product
Right = contaminated by mold
Below = mold growth on agar

Normal bacteria handprint.
Every person's hand has bacteria.
Some are there all the time.
Some we pick up from surfaces.

Gram Stain of Bacteria
Purple = gram positive
Pink = gram negative

Organisms from bathwater.
Note pink *Serratia* and fungi.

ALP SYLLABUS- NOVEMBER 2014

- Syllabus was distributed on a Saturday session
 - Each team selected which J&J product they wanted to research
 - Students were to collaborate on ALP during Saturday sessions & afterschool
- BTE Bi-Monthly Calendar Reminders

March 2015						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10 Open Office Hours- J&J 4 - 5 p.m.	11	12	13	14
15	16	17 Open Office Hours- J&J 4 - 5 p.m.	18 Workshop: Less Stress (RLC) - NBHS 2:50-3:55 p.m. Room A301 Student Ambassador Applications DUE!!	19	20	21
22	23	24 Open Office Hours- J&J 4 - 5 p.m.	25	26	27	28 Saturday Class- Ruth Adams Building 10:00 a.m. - 1:00 p.m. Mini Workshop: Study for the Sciences ALP: New Generation Prototype Presentation
29	30	31 Open Office Hours- J&J 4 - 5 p.m.				



"Show me a person who doesn't make mistakes and I'll show you a person who doesn't do anything."

Leonard Rubino

FOLLOW-UP VISIT TO SKILLMAN- JANUARY 2015

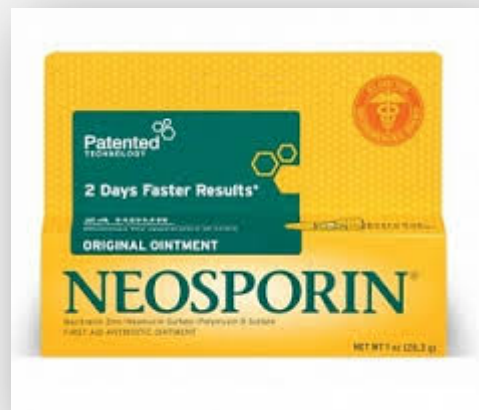
- BTE participants collaborated with J&J facilitators and discussed their New Generation Prototype



NEW GENERATION PROTOTYPE PRESENTATIONS

MARCH 2015

- Each ALP team presented to BTE Committee & Skillman lab rep



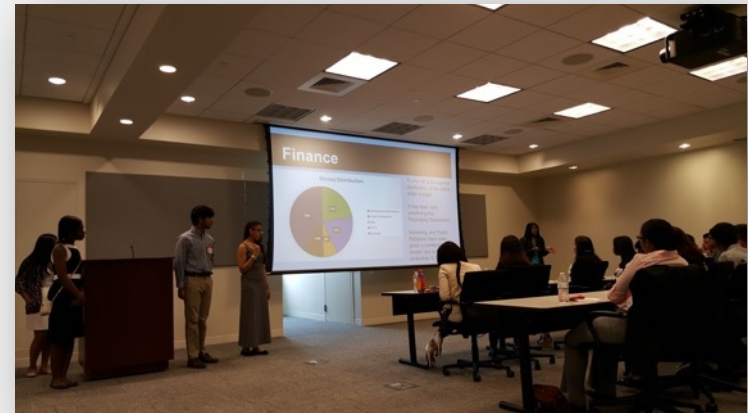
ALP PRACTICE SESSIONS- JUNE 22ND & 23RD 2015

- Over the course of 2 days, each ALP team came to J&J WHQ to deliver practice presentations
 - Feedback from BTE Site Coordinator, Champion, and Mentors was provided to each group
 - Identified gaps in presentations
 - Practiced with equipment
 - Body language
 - Speed



ALP PRESENTATIONS- JUNE 26TH 2015

- 6 ALP Teams presented their New Generation Prototype
- Each team was evaluated by a panel of judges
- 1st, 2nd, and 3rd place awards were given to top 3 teams



PROJECT COMPLETE!



CHALLENGES:

- Collaborating between two different schools
- Equal distribution of project responsibilities
- Security check-in at campus visits



CHANGES/ RECOMMENDATIONS:

- Public speaking workshop
- Business etiquette workshop
- PowerPoint workshop
- Monthly or bi-monthly PowerPoint check-ins



Questions

