

IQP Student Schedule – *Kindergarten & 1<sup>st</sup> Grade*  
Graduate Fellows: Katie Bush and Megan Holmes

- I. A-term
  - a. *Clearly* define problem statement: (*final form by end of A-term*)
  - b. Conduct **Literature Review** (*final form by end of A-term*)
    - i. Obtain *at least* 16 relevant sources
      - 1) Summarize relevant articles
    - ii. Interview MA educators & other relevant sources (teachers in other states, students, student teachers, counselors, etc.)
      - 1) Find other schools using kits – conduct interviews
      - 2) Visit classrooms
    - iii. Research history of PIEE project
    - iv. Start working **Bibliography** for paper – all sources for **Lit. Review** should be included.
  - c. Read “Yardsticks” chapters for grades K & 1
  - d. Create working **Glossary**, if necessary
  - e. Create electronic **Table of Contents** within working IQP draft
  - f. Write working draft of **Methodology**
    - i. Use “Problem Statement” – see I.a. (above)
    - ii. Write *short* “Introduction” to **Methodology** – describe *why* your team chose the given methodology
      - 1) briefly describe why this methodology is relevant
      - 2) briefly describe how the PIEE project works, how you are sponsored and your exact role in PIEE as an IQP student
      - 3) describe any tangible products you might create (ex. kits, lesson binder, assessment sheets)
        - a. explain how these products relate science/technology to society (what makes this an IQP?)
      - 4) describe how lessons will be created and kits prepared
      - 5) describe how lessons & kits will be implemented in the classroom
      - 6) describe process to be used to evaluate and redesign lessons and to build final kits (e.g. how will feedback be obtained?)
      - 7) describe your sampling strategy or planned statistical analysis (if relevant)
  - g. Lessons
    - i. Finalize outline for first implementation (for K or 1): **Sept., Oct., and Nov.**
      - 1) Check to ensure that there will be more than one lesson to meet each benchmark
    - ii. Finalize lessons for first implementation (for K or 1): **Sept., Oct., and Nov.**
    - iii. Design lessons for :

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- 1) Content – engineering design process, Worcester Public Schools (WPS) benchmarks, relevance to curriculum, implementation feedback, etc.
  - 2) Format – follow standard format *exactly*: final lesson binders produced by WPI IQP teams may be disseminated to all MA K-6 teachers!
  - iv. Create assessment sheet for first implementation of lesson
  - v. Begin to implement lessons/kits in classrooms.
    - 1) Observe students using kits
    - 2) Discuss lessons/kits with WPS teachers – solicit teacher/student feedback (**very important**) – Carefully document feedback – extremely useful to future educators!!
  - vi. Redesign lessons & kits to reflect feedback and produce a finalized version for teachers
- II. B-term
- a. Rework and refine **Methodology** (*final form by end of B-term*)
  - b. Create new lessons as defined by your work team (see planned lessons for the year)
    - i. Follow steps I.g.i thru I.g.v for lessons to be implemented in **Dec., Jan., Feb., and Mar.**
  - c. Collect **Results** – based on “Problem Statement” or Hypothesis
    - i. Organize into working draft of **Results** section.
- III. C-term
- a. Create new lessons as defined by your work team (see planned lessons for the year)
    - i. Follow steps I.g.i thru I.g.v for lessons to be implemented in **Apr., May, June**
  - b. Check test scores of students in fall versus in spring – determine whether PIEE has improved technology/engineering scores
  - c. Determine whether PIEE project and kits are self-sustaining (*finish by end of C-term*)
    - i. Make necessary changes to ensure sustainability
  - d. Rework and refine **Results** section
  - e. Write **Analysis of Results** (of assessments, scores, interviews, etc.) (*final form by end of C-term*)
  - f. Write **Conclusions** based on **Analysis** and **Results** (*final form by end of C-term*)
  - g. Write **Recommendations** based on **Conclusions** (*final form by end of C-term*)
  - h. Write **Abstract**, essentially a *very* short summary of your entire IQP (*final form by end of C-term*)
  - i. Write **Executive Summary** (less than 10% length of paper, 1-10 pages max) based on **Abstract** (*final form by end of C-term*)
- IV. D-term

Final Deliverables:

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1. All lessons in final form on/in:
  - a. Binder
  - b. Website
2. All kits in final form:
  - a. 1 per grade level
3. Assessment forms:
  - a. Create
  - b. Organize in binder
  - c. In kit
4. A spreadsheet of all lessons (by grade) categorized by their MA Benchmarks (include a copy in relevant binder and on website)
5. A written report detailing children's (K & 1) perceptions of engineering in the fall versus in the spring.
6. Final report.