WHERE WILL YOU GO WITH PHYSICS?

(What will our physics students be doing tomorrow?)

We are in an age of technology where computers, cell phones, I-pods, I-pads, tablets, XM and Sirius satellite radio, flat screen TV’s, electric cars and other innovations rule our lives. The United States is well behind other industrial nations with respect to the number of technical degrees given on a per capita basis. Your challenge is to research a job field where someone with a background in physics may have a job. You will need to research the schooling they needed to get where they are, how much money they make and what the general availability of jobs in their field is today.

**Project Guidelines:**

**Job Description (3 page essay):**

* Research a technical field that someone with a background in physics may be working. Describe a day in their life. ***What do they do from hour-to-hour, day-to-day, week-to-week, etc? What are their key responsibilities?***

Technical Fields that you may consider, but not limited, to include **(Please see the teacher if you have a job that is not listed in the table below):**

|  |  |
| --- | --- |
| * Physicist | * Structural Engineer |
| * Electrical Engineer | * Architect |
| * Mechanical Engineer | * Computer Hardware Designer |
| * Nuclear Engineer | * Biomechanical Engineer |
| * Petroleum Engineer | * Biophysicist |
| * Aeronautical / Aerospace Engineer | * Pharmaceutical |
| * Astronaut | * Patent Lawyer |
| * Civil Engineer | * Mathematician |

**Educational Requirements (Tabulated):**

* + What schools would you choose? *Choose three schools from which only one may be from New York*.
  + What prerequisites are required to get into the program at the school *(high school GPA, SAT, ACT scores, etc.)*?
  + What are the requirements for getting the degree? That is, what types of courses do you need to take, and how many years will it take to complete the program? *Focus on physics related courses.*
  + Is a professional license required to perform job?
  + What are your prospects of getting a job once you are through with school *(Is there a need in the workforce for people trained in your particular discipline.)*?
  + How much will it cost you to get your degree?

**Employer and Location (Tabulated):**

* + Who will be your most likely employer? List at least three likely candidates separately.
  + Where will you be employed?
    - What is the sector of the economy that you will be employed in, e.g. transportation, computers, communications, energy, manufacturing, etc.
    - What will be your geographical setting? *i.e. Where in the U.S. will you be located?*
  + What will be your salary (BS vs. MS vs. PhD)?
  + What is your salary potential (maximum value)?
  + What percentage and/or number of people in the workforce that are employed in your profession?

**Research:**

* + Primary sources such as a family member or friend could be very helpful.
  + Use the library.
  + Department of Labor (<http://www.bls.gov/>)
  + Professional Occupations (<https://www.bls.gov/ncs/ocs/ocsm/comMoga.Htm>)
  + Career Planning (<http://careerplanning.about.com/od/exploringoccupations/>)
  + Job Search Website:
  + Monster (<http://www.monster.com/>), Indeed (<http://www.indeed.com>)
  + Princeton Review (<http://www.princetonreview.com/careers.aspx>)
  + US Census Bureau (<http://www.census.gov/>)
    - <http://www.census.gov/econ/www/index.html>
  + USA.Gov. – US Government’s Official Web Portal:
    - <https://www.usa.gov/jobs-careers>

**Written Report ("A day in the life of....."):**

* + Write a three-page summary (double spaced/ Times New Roman/12 point font) describing the job itself in detail that covers the types of activities and importance of the job relative to our economy and/or furthering the understanding in a particular field. If there are multiple facets to a job, focus on only one or two of them. ***Tell me what they do on a minute-by-minute, hour-by-hour, daily, weekly.....basis. Describe their key responsibilities.***
  + Include separately, i.e. **not included in the written summary**:
    - Table on educational requirements from three different institutions, only one of which may be in New York. See front page for details.
    - Table on Employers, location, salary that includes differences between degree levels (BS vs. MS vs. PhD). See front page for details.
    - Sources from which information was obtained (minimum of three required.)

**Grading Rubric: Jobs of people with a physics background in education.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Unsatisfactory | Satisfactory | Exemplary | Points |
| Job description.  Points | Poorly written summary of the job description.  Summary lacks details and facts.  0 - 5 | Summary of job description is relatively complete? Summary includes adequate details and facts to get a good visual of the job.  5 - 15 | Excellent summary of the job. All aspects of the job including details of job duties and responsibilities are clearly discussed.  15 - 20 |  |
| Educational requirements.  Points | Limited or no reference to educational requirements for the job.  0 - 2 | Some of the educational requirements are present, but they may not be clearly connected to the job description.  2 - 4 | Educational requirements are fully discussed and connect well with the job description.  4 - 5 |  |
| Employer and Location.  Points | Limited or no evidence of research on the potential of the job.  0 - 2 | Student shows some effort on the research of job potential. Most elements are covered.  2 – 4 | Student fully covers the potential of the job, including starting salary, geographic location, potential employers, etc.  4 - 5 |  |
| Total Points | | | |  |

**Due Date:**

* October 25, 2019