CSUPERB GRFP Writing Workshop January 14, 2022
Exercise based on "The Science of Scientific Writing" by Gopen and Swan
http://www.americanscientist.org/issues/pub/the-science-of-scientific-writing

Plan out your project! Break up your project into small pieces. Think about what resources you need to get the small part finished, then assign a due date. Share this plan with your advisor. Your advisor may have conflicting responsibilities so you may need to adjust your schedule. Start with the final due date and work backwards. If you will be submitting a GRFP, the due date (October 2022) will be announced in late July/August of 2022.

Part of the Project	What resources do you need? Literature? Lab results? Your Advisor? Writing Center?	Due date

Components of the GRFP:

Personal, Relevant Background, and Future Goals Statement

Important questions to ask yourself before writing the statement:

1. Why are you fascinated by your research area?
2. What examples of leadership skills and unique characteristics do you bring to your chosen field?
3. What personal and individual strengths do you have that make you a qualified applicant?
4. How will receiving the fellowship contribute to your career goals?
5. What are all of your applicable experiences?
6. For each experience, what were the key questions, methodology, findings, and conclusions?
7. Did you work in a team and/or independently?
8. How did you assist in the analysis of results?
9. How did your activities address the Intellectual Merit and Broader Impacts criteria?

Graduate Research Plan Statement
3 Reference letters
Academic transcripts

Important Dates

→ Late July/Early August - GRF Program Solicitation Released
→ Early August - FastLane Application Opened
→ Late October/Early November - Application Deadlines (determined by discipline)
→ Early April - Awards Announced
→ Early May - Fellows Acceptance Deadline

https://www.nsfgrfp.org/applicants/important_dates https://www.nsfgrfp.org

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What is the main idea of each paragraph? Which paragraph is the easiest to find the main idea? Why?

A.) HQ (hydroquinone) is one of the most abundant metabolites of benzene (17, 18) and has been shown to increase levels of reactive oxygen species (ROS) (19, 20), induce mitotic arrest (21), and promote apoptosis (20). Although benzene and benzene metabolite exposures have also been shown to be associated with loss of genomic methylation (9, 22), no mechanisms have been described to explain the observed decreases. In this study, we focused on changes in DNA methylation by the benzene metabolite hydroquinone (HQ). Benzene is a ubiquitous environmental toxicant found in petroleum products and cigarette smoke (15) that has been associated with aplastic anemia and acute myelogenous leukemia (16).

Write the main idea of the above paragraph:

_____
_____
_____
_____

B) In this study, we focused on changes in DNA methylation by the benzene metabolite hydroquinone (HQ). Benzene is a ubiquitous environmental toxicant found in petroleum products and cigarette smoke (15) that has been associated with aplastic anemia and acute myelogenous leukemia (16). HQ is one of the most abundant metabolites of benzene (17, 18) and has been shown to increase levels of reactive oxygen species (ROS) (19, 20), induce mitotic arrest (21), and promote apoptosis (20). Although benzene and benzene metabolite exposures have also been shown to be associated with loss of genomic methylation (9, 22), no mechanisms have been described to explain the observed decreases.

Write the main idea of the above paragraph:

_____
_____
_____
_____

C) Cigarette smokers have an increased risk for aplastic anemia and leukemia (12,13). Leukemia kills 24,000 US residents a year(12, 21). 42.1 million US residents smoke cigarettes that contain harmful amounts of toxic molecules(15). There are 5,000 different compounds in cigarette smoke, including nitrosoamines, polyamromatic hydrocarbons, hydroquinone (HQ) and catechol(15). Nitrosamines cause deamination of cytosine. Polyaromatic hydrocarbons cause frameshift mutations. HQ and catechol increase amounts of reactive oxygen species (ROS) that cause free radical damage to cellular molecules. ROS causes a decrease in DNA methylation (9,22).

Write the main idea of the above paragraph:

_____
_____
_____
_____

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What is the main idea of each paragraph?

From Kevin Johnson's successful NSF GRFP application:

One current hypothesis contends that toxin production originated as a mechanism to acquire iron and nitrogen from the environment [4]. This implies that the production of these secondary metabolites is in response to changes in nutrient availability, and the resulting toxicity may be coincidental [6]. This hypothesis is supported by the fact that while these toxins impact vertebrates, the evolution of the toxin genes predates the emergence of metazoans by over a half million years [6,7]. My proposed project will establish how the availability of iron and nitrogen affects the molecular controls of toxin production.

Write the main idea of the above paragraph:

_____
_____
_____
_____

From Eddie Campbell's successful NSF GRFP application:

Prion proteins are able to adopt alternative conformations that can self-template, allowing them to propagate as protein-based genetic elements that are stable on long biological timescales[1]. Virtually all known prions aggregate into long, highly stable amyloid fibers[2]. The most well studied examples, [PSI^+] and [RNQ^+], contain modular prion-forming “domains” (PrDs) that are enriched in asparagine (N) and glutamine (Q)[3,4,5]. These PrDs facilitate the formation of the cross-beta sheet fibrillar core[6]. Most prions that are known act by sequestering native conformers into insoluble fibers, precipitating loss of the protein’s normal cellular function[1].

Write the main idea of the above paragraph:

_____
_____
_____
_____

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Keep your verbs close to their subjects! Use the following paragraph was exerpted from Kevin Johnson's successful NSF GRFP application, for the next exercise.

In my two years at CSUMB I have mentored minority students interested in science and scientific careers. By doing this I developed key communication skills necessary for mentoring and solidified further my desire to help underrepresented students throughout my career. I volunteered my time with the CSUMB organization Recruitment in Science Education (RISE) where I provided tutoring and college application advice to underrepresented minority high school students in the Monterey Bay area. I also presented my research in a reverse-science fair at North Salinas High School (NSHS). NSHS is located in a predominantly minority district of Monterey County and serves as a primary feeder into CSUMB. The reverse–science fair allowed high school students to see the research opportunities they can find at their local university. As a minority myself, I wanted to communicate to these students that they can pursue careers in science. In the last year of my research at CSUMB I am mentoring and training a new McNair Scholar who will continue my project in the MELab. In recognition of my research and commitment to the education of my peers and the local community, I was the first recipient of the Barbara Baldock and Phil Butler Research Scholarship. This award, along with my appointment as a Louis Stokes Alliance for Minority Participation (LSAMP) Scholar, provided many opportunities to develop my research and engage in community outreach.

Don't make a subject pine for its verb, keep them close!
Circle the subject of each sentence and put a square around its verb. Then list the subjects and their verbs in the following chart. Count the number of words between the subject and its verb and put that in the last column.

Subject	Verb	Number of words separating the subject and its verb