Appendix

Overview
The appendix to *Type 2 Diabetes: A complex disease of gene and environment interactions* contains a mix-and-match set of resources to augment student understanding of this topic and create thoughtful Call to Action products. The resources include additional ***Science Content, Student Support Materials***.

Science Content found in the Appendix include:

- PowerPoint slide set with scientific content, mostly in the form of graphs and tables, showing data from research on type 2 diabetes.

- Newspaper and research articles, including current articles about research studies and/or from news organizations that highlight different aspects of type 2 diabetes.

Student Support Materials found in the Appendix include:

- Student handouts and worksheets that scaffold student reading, viewing and analyzing scientific content.

- Structured classroom discussion strategies that encourage student participation, group discussion, thoughtful analysis, and foster a safe classroom atmosphere.

The student support materials can be used to help students analyze and process the science content. For example, a teachers may wish to pair a PowerPoint slide with higher-level data with a Socratic seminar discussion technique during which the whole class works together to come to a deeper understanding of the data. A teacher may also wish to assign an article found in the Science Content section together with the *My Evolution of Thought* worksheet to guide students in their reading. These supplementary materials can also support students with their Call to Action products.

Suggested materials may be accessed through their accompanying URLs due to possible copyright restrictions. For ease of following links, this document is also available in Word form at:

https://gsoutreach.gs.washington.edu/instructional-materials/gem-type-2-diabetes/

Science Content—PowerPoint Slides

POWERPOINT SLIDES
Name of resource *Contributions to Type 2 Diabetes, Glucose in Balance, and Oral Glucose Tolerance Test*
Description These three slides are found in the curriculum PPT, but can be used as the focus of a short Socratic seminar to gain deeper understanding of the complex topics
Author(s) UW Genome Sciences Education Outreach, New England Journal of Medicine, Diabetes
Location Slides 1 – 3 GEM_Diabetes_Appendix https://gsoutreach.gs.washington.edu/instructional-materials/gem-type-2-diabetes/
Name of resource *Glucose homeostasis graphic*
Description Red and green arrows show graphic representation of glucose homoeostasis
Author(s) Addison Wesley Longman
Location Slides 4 GEM_Diabetes_Appendix https://gsoutreach.gs.washington.edu/instructional-materials/gem-type-2-diabetes/
Name of resource *Graphs of insulin, glucagon and glucose levels over time*
Description These three graphs show different representations of the fluctuations in blood glucose, insulin and glucagon over time
Author(s) RH Unger, New England Journal of Medicine JD Brunzell, Journal of Clinical Endocrinology Metabolism
Location Slides 5, 6 and 7 GEM_Diabetes_Appendix https://gsoutreach.gs.washington.edu/instructional-materials/gem-type-2-diabetes/ http://www.medscape.org/viewarticle/551055 http://www.austincc.edu/apreview/EmphasisItems/Glucose_regulation.html
Name of resource *Diabetes incidence in non-Pima Mexicans, Mexican Pima and US Pima*
Description This slide shows the incidence of type 2 diabetes data in three different populations and is useful in discussing genetic and environmental aspect of type 2 diabetes in Pima Indians.
Author(s) LO Schultz, Diabetes Care
Location Slide 8 GEM_Diabetes_Appendix https://gsoutreach.gs.washington.edu/instructional-materials/gem-type-2-diabetes/

Name of resource *Data from the Diabetes Prevention Program (DPP)*
Description These two slides present data from a long-term research study comparing the effects of a placebo, Metformin, and intense lifestyle changes on different groups of people
Author(s) KA Jablonski, Diabetes, Copyright American Diabetes Association, Inc.
Location Slides 9 and 10 GEM_Diabetes_Appendix https://gsoutreach.gs.washington.edu/instructional-materials/gem-type-2-diabetes/

Science Content--Articles

ARTICLES
Name of resource *Diabetes: dirty air 'may raise' insulin resistance risk*
Description News article about how children's exposure to air traffic pollution could increase their risk of insulin resistance, which can lead to diabetes in adults.
Author(s) BBC News, ©2013, from a study in *Diabetologia*.
Location http://www.bbc.com/news/health-22465389
Name of resource *How fat grizzly bears stay diabetes-free (Science Mag) / A grizzly answer for obesity (NYT article)*
Description News articles reporting a study that measured blood glucose, insulin levels, body weight and other markers in grizzly bears before, during and after hibernation.
Author(s) Sarah C. P. Williams, Science Magazine, August, 2014 Kevin Corbit, The New York Times Opinion Pages, Feb, 2014
Location http://news.sciencemag.org/biology/2014/08/how-fat-grizzly-bears-stay-diabetes-free http://www.nytimes.com/2014/02/12/opinion/a-grizzly-answer-for-obesity.html?_r=0
Name of resource *Averting Diabetes Before It Takes Hold* *Beating Back the Risk of Diabetes*
Description These two New York Times articles give helpful background on type 2 diabetes, treatments, and preventions. Selected reader comments from both articles can also be used to provide additional views and perspectives about the issue.
Author(s) Jane E. Brody, New York Times Personal Health Section, Sept. 2014
Location http://well.blogs.nytimes.com/2014/09/08/prediabetes-blood-sugar/

http://well.blogs.nytimes.com/2014/09/15/beating-back-the-risk-of-diabetes/
Name of resources *Chinese Kids Gorge on Junk Food, With Familiar Consequences* *Nearly one-third of the world's population is obese or overweight, new data show* *Native Americans rediscover ancestral foods Miscellaneous Articles*
Description These three articles make the link between cultural environment and food intake.
Author(s) Chinese Kids: Dexter Roberts, Bloomberg Business Week, Sept. 2014 Nearly one-third: C. Murray and M. Ng, Institute for Health Metrics and Evaluation, UW, 2014 Native Americans: Minneapolis Star Tribune, adapted by Newsela staff, Sept. 2014
Locations http://www.businessweek.com/printer/articles/222714-chinese-kids-gorge-on-junk-food-with-familiar-consequences http://www.healthdata.org/news-release/nearly-one-third-world's-population-obese-or-overweight-new-data-show https://newsela.com/articles/nativeamerican-diets/id/5142/
Name of resource *Sugar substitutes, gut bacteria, and glucose intolerance (The Scientist)* *Artificial Sweeteners may disrupt body's blood sugar controls (NYT)*
Description These two articles report on a study published in *Nature* about how non-caloric sweeteners can spur glucose intolerance and effect gut bacteria.
Author(s) Anna Azvolinsky, The Scientist, Sept. 2014 Kenneth Chang, The New York Times, Sept. 2014
Location http://www.the-scientist.com/?articles.view/articleNo/41033/title/Sugar-Substitutes--Gut-Bacteria--and-Glucose-Intolerance/ http://well.blogs.nytimes.com/2014/09/17/artificial-sweeteners-may-disrupt-bodys-blood-sugar-controls/?_php=true&_type=blogs&_r=0

Student Support Materials

STUDENT SUPPORT MATERIALS
Name of resource *My Evolution of Thought*
Description This one-page worksheet used for article review helps students identify and reflect on a subject before and after reading and analysis.
Author(s) Northwest Association for Biomedical Research (NWABR)
Location https://www.nwabr.org/sites/default/files/Evolution_Thought_Article_Review_SNoSR.pdf

Name of resource *Media Review and Analysis*
Description This worksheet supports students in analyzing media for purpose, perspective, assumptions, claims and impact. It can be used for most types of media, and contains a section specifically used to analyze scientific research articles.
Author(s) NWABR
Location https://www.nwabr.org/sites/default/files/Media_Review_Worksheet_SNoSR.pdf
Name of resource *Worksheet to use with TED Talks*
Description This worksheet can be used with any TED talk to help guide student viewing.
Author(s) Laura Randazzo
Location http://www.teacherspayteachers.com/Product/TED-Talks-FREE-Worksheet-to-Use-With-ANY-TED-Talk-Public-Speaking-Grades-6-12-1348222

Structured Discussion Strategies

STRUCTURED DISCUSSION STRATEGIES
Name of resource *Socratic Seminar*
Description In this group discussion strategy, students work together to achieve deeper understanding of a text, graph, reading or other media.
Author(s) National Paideia Center, NWABR
Location Written description: https://www.nwabr.org/sites/default/files/SocSem.pdf Video: https://www.youtube.com/watch?v=9TckVl4e3Y0
Name of resource *Discussion Norm-Setting*
Description A guide for setting classroom discussion ground rules in order to foster a safe and communicative classroom environment.
Author(s) NWABR
Location https://www.nwabr.org/sites/default/files/pagefiles/Norm_Setting.pdf

Name of resource *Using Reader Comments as Stakeholder Cards*
Description Most electronic news articles have a reader comment section. Teachers can choose a range of appropriate comments to print out for students to read and report back on. This can be a helpful strategy for identifying differences in perspective, possible bias, argumentation skill (by providing examples of both strong and weak arguments), providing scientific and cultural context, and increasing student understanding.
Author(s) Readers/commenters on article
Location See comment section from article of interest

Other Resources

Name of resource *TED Talks*
Description TED (Technology, Entertainment and Design) talks are 10-20 minute talks by people with ideas to share. A good place to start would be with the talk by Dr. Peter Attia filmed in April 2013 at TEDMED 2013, titled: Is the obesity crisis hiding a bigger problem?
Author(s) Various
Location TED.com