Data Careers
Facilitator Guide



DIGITAL CAREERS TOOLKIT
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DOWNLOADABLE GUIDES

Data Careers - Facilitator Guide

This guide is prepared for teachers who use the Digital Career Toolkit for class activities, or counselors who use the Toolkit as a coaching guide. Use this alongside the facilitator resource About Data Careers which has additional technical and contextual information.

Facilitation Suggestions

Below are suggestions to use the 'Explore Careers-Data Analyst and ETL Developer" sections of the toolkit, with additional resources.

**Because some of the activities introduce the technical skills associated with the career, it is recommended that as a facilitator you try them first.*

In my class	Suggestion	Learners will be able to
I want to do a mini-lesson on data to generate career awareness	Learners read "Data Analysis could be your future path" & watch the video clips of "Professionals who Work in the Field"	Name the work of a data scientist and say why it is important
I want one lesson to introduce data careers as part of a related unit	Learners read "Data Analysis could be your future path", watch video clips of "Professionals who Work in the Field" and spend ~20-30 minutes on the "Want to try it out now?" section.	Name the work of a data analyst and say why they could be good at/interested in it
I want to include 2-3 lessons on data careers as part of a tech course or data science unit	Learners work through all the Data Analyst Career Exploration activities in the toolkit, and the 'ETL Developer could be your future career" section. See Lesson See below & additional facilitator context.	Name the work of a data analyst, and write up their plan to pursue this path
I want to include 4-6 lessons on data	Learners work through all the Data Analyst and ETL Developer Career Exploration	Name the work of a data analyst & an ETL

careers as part of a tech course or data science unit	activities in the toolkit. See Lesson Suggestions below & additional facilitator context.	Developer. Select one & develop a plan to pursue this path
I am working individually with learners as part of their postsecondary planning.	Learners work through all the Data Analyst and ETL Developer Career Exploration activities in the toolkit. See Lesson Suggestions below & additional facilitator context.	Name several jobs and pathways within the field of data, say why they are interested in pursuing the path, and add workforce training options to their postsecondary plan

Introducing Data Careers

- Introductory slides pose some questions to set data in the real world
- Although there is background noise, this 3 min video interview with Ana Maria Ecceveri, a data scientist at IBM, draws parallels between a career in data and life.

Interactive Introduction Activities

Start with the ETL Developer "want to get started right now?" activity in the toolkit, to get learners familiar with observing patterns and formatting data in excel. This is a good foundation to build off of before moving to the Data Analyst "try it out now" activity.

'Want to get started right now?' toolkit activity - ETL Developer

- These ETL Developer slides can be part of your class orientation ETL Developer Careers. These slides set context for the 'Want to try it out now?' activity in the Toolkit

- Notes for using the ETL Exercise Spreadsheet:
    - The Spreadsheet models the concept behind an ETL developer's work. It assumes students are familiar with Microsoft Excel or Google Sheets.
    - If you are using this as a class activity, you may download the ETL exercise in Google Sheets or Microsoft Excel.
    - If you are doing this as a class activity, students should only use Tab 1 "Exercises"
    - Note:
        - Tab 2 is the Answer Key
        - Tab 3 contains all the source mapping data without the questions interspersed, if you choose to make your own questions or construct your own exercise
        - Tab 4 "Destination Data" contains the format if you construct your own exercise or for use as an extension activity
- For advanced learners familiar with Microsoft Excel/Google Sheets, this exercise will take ~10 minutes. For learners newer to Excel the lesson will obviously take longer and may need additional scaffolding.

‘Want to try it out now?’ toolkit activity - Data Analyst

- The Pet Project opens to a data set from the NYC Open Data project. If you are not in NYC, you can offer a similar project using data sets at Data.gov (e.g. climate data) or find your local data set.

- The goal of this project is to model use of data sets to pose questions, and analyze data to make predictions. Take note of the range of open ended questions that the data can answer. The steps broadly encourage learners to look for multiple sources of data - dog parks, pet adoption agencies, etc.

- The project includes a learner Worksheet with instructions on how to use Microsoft Excel
    - Directions: The File is Read Only. The first step is to have students open it and ‘Save As’ an Excel file copy that they can use.
    - Once open, there is a tab of **Excel basics** for students new to using Excel
    - A tab of **Dataset questions** is designed for students to use with the NYC Dog License data. Students will be guided to:
        - Orient to the data through questions, beginning in Column J2
        - Respond to observational questions, beginning in Column J37

- The tasks you performed here are exactly the kind of work a Data Analyst would do. Depending on who you are working for, you might be asked the following questions as a Data Analyst who is using the Excel Spreadsheet:
    - If you are a Data Analyst working for a Pet Supply Chain, you might get asked to present data to help them decide if they should open a new pet store in NYC. What data would you show to help answer this question? For example,
        - How many dogs are there in NYC? Has there been an increase over time?
        - In what zip code are there the most number of dog licenses issued? Does it make sense to open a new pet store there?
    - If you are a Data Analyst working for the NYC mayor’s office, you might get asked to present data to help them decide if they should charge more for dog licenses. What data would you show to help answer this question? For example,
        - Would you make more money if the city charged more for licenses for puppies than older dogs?
        - Would you make more money if the city charged more for licenses for some breeds of dogs?
    - If you are trying to open a dog care business yourself -
        - Which neighborhood are you most likely to have the most number of clients to offer dog walking services? What data are you using to decide?
        - Should you specialize in walking puppies or older dogs?
        - Should you offer grooming services for a particular breed of dog?

- The App Project is more technically focused on drawing inferences from a single data set.

- Note: the activities assume familiarity with Spreadsheets.
    - For curriculum on teaching Google Sheets see Google's Applied Digital Skills - filter by 'Sheets', or a free course from Udemy on Useful Excel for Beginners
    - To build conceptual understanding of spreadsheets:

        1. Design ways for learners to use Excel Spreadsheets in their everyday life (e.g., track college applications, make spreadsheets to track the performance of their favorite team in the league, etc.)
        2. Design activities for learners to make predictions using data (e.g., this year's league winner, next year's Grammy winners, etc.)
            a. Put together a Spreadsheet with nominees/teams in the league
            b. Create a second tab with previous scores/winners from the last two years, etc. What patterns do you notice?
            c. Add more data (e.g., genre winners, affiliated studios, number of players injured, etc.)
            d. Make a prediction based on the data.
            e. How will you present your data so that it's clear and easy to understand?

Skills to Pay the Bills

As a facilitator, you can encourage a strength-based and growth mindset.

- ***What you bring to the work already*** - This section emphasizes durable skills that learners already have and/or can cultivate - communication, persistence, curiosity - with a focus on particular strengths that are important to these roles
- ***What you will learn*** - The section outlines skills to be learned - especially technical skills that can be demonstrated through projects and certifications

Using the Job Description

- Designed as a synthesizing or culminating activity. There are job descriptions for both Data Analyst and ETL developer on the corresponding toolkit pages. Learners can choose 1 or do both depending on timing and interests.
- Note that the Job Descriptions are edited versions of posted jobs. The name of the company is removed. The Job Descriptions are skill-based - they do not require a degree
- Provide context to understand the components of a job description
- Suggested activities:
    - Highlight the 'employability skills' like communication or teamwork
        - Note which of these you feel you are already good at
    - Highlight the technical skills required
        - Note which of these can be learned and demonstrated via certification
    - Ask learners to project into the future and write a 250 word paragraph expressing interest in the job

        - This can be extended to Make a Plan to pursue training and position themselves to be ready to apply for this kind of job in the future
    - Create mock interview panels with learners in which they interview for this job as a culmination for what they learned through the Toolkit

Using the Toolkit to Make a Plan

See Facilitator Guide to Make a Plan

Have a question? Have suggestions or advice for other teachers? Fill out the 'Contact Us' form.