**Kindergarten measles vaccination exercise:**

There are 2 worksheets in the “MMR\_vaccination.xlsx” workbook:

1. Mmr\_vaccination. Schools serving kindergartners in the 2017-18 schoolyear. This data only includes schools that had 5 or more kindergartners (smaller ones are not required to report) and is missing some schools that failed to report to the state. Data source: Minnesota Department of Health.
2. School\_list. This is a list of schools in Minnesota that contains some identifying info about each school, such as the county where it is located and the type (public or private). Source: Minnesota Department of Education

RECORD LAYOUT for mmr\_vaccination:

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| --- | --- |
| school\_id | Unique ID number for the school |
| IDDIS | Health department ID department |
| DISNAME | District name |
| SCHNAME | School Name |
| district\_type | District type (see codes at bottom of this sheet) |
| district\_num | district number |
| school\_num | school number |
| enroll | total enrollment |
| complete\_mmr | number of k-students with complete MMR vaccination |
| complete\_pert\_mmr | percent of k-students with complete MMR |
| inprogress\_mmr | number of k-students with incomplete MMR |
| inprogress\_pert\_mmr | percent of k-students with incomplete MMR |
| co\_mmr | number of k-students with conscientious objection waiver for MMR |
| co\_pert\_mmr | percent of k-students with conscientious objection waiver for MMR |
| me\_mmr | number of k-students with medical waiver for MMR |
| me\_pert\_mmr | percent of k-students with medical waiver for MMR |

EXERCISE:

Goal of this exercise. We have measles vaccination data for public and private schools serving kindergartners in Minnesota. However, the vaccination data that the health department provides doesn’t give us much information about the school – like where it’s located, or even whether it is private or public or if it’s a charter school. However, they did give us the unique ID numbers that the Department of Education uses for schools and that will allow us to match this file to another from the education department that does have some more info about the schools. In other words, we’ll add new columns to the mmr\_vaccination data identifying the location and type of school so that we can then do an analysis to determine if vaccination rates are lower in certain parts of the state or in certain types of schools.

1. Get to know your mmr\_vaccination data. Review the record layout and make sure you know what is stored in each column.
2. Use the filters to find schools in the St. Paul school district (district number=0625) and district type = “01” (the ones listed as district type “31” are private schools that are located within the school district boundaries).
3. Sort the data to see which school has the lowest complete vaccination rate
4. Sort the data to see which school has the highest conscientious objection waiver rate.
5. Do any other poking around, using filters or sorting or both to get a good understanding of this data file. When finished, turn off the filters.

Now let’s go to the other data file.

1. Review the school\_list data. Notice how the school\_id column on the far left is the same as the school\_id column in the mmr\_vaccination data. This is the key that will allow us to match the two tables and pull pieces of information from school\_list and add it to the mmr\_vaccination data. In other words, this school\_list table can serve as a “lookup” for us to pull those pieces of information back into the main mmr\_vaccination data table. Note that there are some schools with incomplete information.
2. In the mmr\_vaccination data (for all school districts), go into the first empty column and use VLOOKUP to transfer from the school\_list table the name of the county where the school is located.
3. Then in another new column, use VLOOKUP again to grab the schooltype
4. Be sure that your two new columns have labels in the top row.
5. Now do a new pivot table with your schooltype column in the row box. Instead of counting the schools, though, sum up all the MMR columns that have counts of kids (complete\_mmr, inprogress\_mmr, co\_mmr, me\_mmr). This will effectively make a new table with 5 columns.
6. Copy the results of your pivot table to a new sheet (take only the white parts – not headers – and then type in new headers once you have it in a new sheet). Calculate the percentage of students in each type of school who are completely vaccinated against measles. Then calculate the percentage who have a conscientious objection waiver. (Hint: it will be easier if you calculate a total column first)
7. Repeat this process (going back to step 7) using county as the row value and find out which counties have the lowest vaccination rates and which have the highest conscientious objection rates.

District Type codes

01 = Independent districts & schools

03 = Special Districts & Schools

07 = Charter schools

31 = Non-public schools located in independent districts

32 = non-public schools located in common districts

33 = non-public schools located in special districts

34 = non-public Montessori & Indian schools

62 = Secondary facilities coops