

Names: _____ Date: _____

Face Mask Filters Design Worksheet



1. **Product name** (Give your filter a name): _____
2. How many breaths could you take in one minute on your respiratory system model? _____
3. **Define the problem** (Why are you making this product?):

4. **Design:** What *materials* will you use? Why?

Material	Material Benefits (filter ability, comfort, durability, attachment, etc.)

5. Draw a *sketch* of your design here. Label the different materials and sizes.

6. Build a prototype of your design

7. Analyze your design

Rank the various features of your face mask filter in the following chart:

Features	← Not at all ————— Extremely →									
Is it easy to breathe through the mask?	1	2	3	4	5	6	7	8	9	10
Are there gaps in the mask? (where polluted air can enter)	1	2	3	4	5	6	7	8	9	10
Is it comfortable to wear?	1	2	3	4	5	6	7	8	9	10
How well does it attach to the face?	1	2	3	4	5	6	7	8	9	10
Is it durable? (So it will not fall apart?)	1	2	3	4	5	6	7	8	9	10
Is it affected by water or humidity?	1	2	3	4	5	6	7	8	9	10

How many breaths could you take in one minute on your respiratory system model with the filter mask? _____

Was this more or fewer than the number of breaths without the filter mask? Why?

Looking at you analysis chart, how effective is your face mask filter?

You could not see the air pollution particles flowing through your mask. How would you test your mask’s effectiveness in removing harmful particles from the air?

8. Redesign: What improvements would you make to your mask if you were to redesign it?
