STEM 2 W5 Design Matrix (ADR)

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Description of Need:	**The client does not have enough hand strength to hold a regular guitar pick.**

#	Requirement Type	Requirement Statement	Level	Plastic Half Ring	Thumb Pick	Pick Holder	Acrylic Pick	3D-printed Half Ring
	Design #, Version #			Design 2, Version 2	Design 1, Version 2	Design 3, Version 1	Design 4, Version 1	Design 2, Version 1
1	Functional	The device must be durable enough to withstand multiple uses without breaking.	10	9	9	3	3	9
2	Functional	Should be able to accomodate the needs of various patients, ranging from those with deficiency in muscle tone to those with severe hand contractures.	10	9	9	9	9	9
3	Functional	The device shall be used to create clean sound similar to that of a normal pick when used with a guitar.	8	10	9	6	7	9
4	Functional	The device must be able to stay secured to the hand while strumming the strings.	10	9	7	4	4	9
5	Functional	The device must be usable without extra materials or electricity.	10	10	10	10	10	10
6	Functional	The device must be physically comfortable.	8	8	8	9	8	8
7	Functional	The device must stay in a fixed position on the user's skin.	9	9	7	5	2	9
8	Functional	The device should be easy to put on and take off.	7	9	7	6	1	9
9	Physical	The device shall be compatible with an unmodified guitar.	10	10	10	10	10	10
10	Physical	The final design shall not require 3D printing.	10	10	0	10	10	0
11	Physical	The design shall be mass-producible.	10	10	0	0	0	0
12	Physical	The device is small.	6	10	10	10	10	10
14	Physical	The device shall weigh less than 50 grams.	3	10	10	10	10	10
15	Physical	The design shall be visually appealing.	6	8	7	3	3	8
16	User	The user must have a thumb and index finger on one hand	10	10	10	10	10	10
17	User	The user shall be able to use the device by themselves.	7	9	7	7	6	9
18	Cost	The cost shall be less than $4 per unit.	9	10	10	10	10	10
19	Cost	The cost shall be less than $3 per unit.	8	10	10	10	10	10
			Total	1429	1177	1076	1025	1221

Level	**Range 1-10**
Weight	**Range 1-10**
Scores	**Sum of Level * Weight for Each Requirement Statement**