

# Mission Points Worksheet


NAR/Team # \_\_\_\_\_

General Guidelines ~ these apply to all Mission elements

## Least Points

## Mid-Range Points

## Most Points

	<ul style="list-style-type: none"> <li>* Vague emulation of the function</li> <li>* Unchallenging function to emulate</li> <li>* Poor documentation of the function</li> <li>* Poor operation or outcome</li> </ul>	Award points in this range unless there are specific reasons to award fewer or more points	<ul style="list-style-type: none"> <li>* Accurate emulation of the function</li> <li>* Challenging to realistically emulate</li> <li>* All aspects are well-documented</li> <li>* Successful operation or outcome</li> </ul>	Version 2010.1																																																																																																																
	Category-Specific Guidelines/Examples																																																																																																																			
<b>Staging</b> 15-30 points per staging event 50 points maximum all stages	~ 15 points Short booster with tumble recovery Non-scale staging location (5-10 points)	~ 20-25 points	~ 30 points Upper stage stability augmentation (e.g. pop-out fins) Delayed upper stage ignition	Flight 1 / 2 Stage 2 ____/____ Stage 3 ____/____																																																																																																																
<b>Jettisoned Assemblies</b> 5-20 points per assembly 50 points maximum	~ 5 points Non-scale (e.g. packed w/ main chute) Out-of-sequence jettison	~ 10-15 points	~ 20 points Scale-like and visible jettison of assembly Proper sequencing of jettison per documentation	1 ____/____ 2 ____/____ 3 etc ____/____																																																																																																																
<b>Payload Operation</b> 5-25 points 50 points maximum	~ 5 points Unrepresentative payload or operation No result from payload (0 points)	~ 15 points Altimeter, air sampler, accelerometer, camera, etc	~ 25 points Extra realism (e.g. "scale" camera view, telemetry) High-quality result from payload operation	1 ____/____ 2 ____/____ 3 etc ____/____																																																																																																																
<b>Gliding Flight</b> 15-50 points per gliding part 50 points max all gliding parts	~ 15 points Poorly trimmed glide (stalls, etc) Unrealistic glide trajectory or attitude	~ 35 points Minor trim problems	~ 50 points Proper trim, no "unscale" oscillations or motions Realistic glide trajectory and attitude	1 ____/____ 2 ____/____ 3 etc ____/____																																																																																																																
<b>Deployment Operation</b> 5-20 points 20 points maximum	~ 5 points Poorly represents prototype operation Poor result (e.g. incomplete deployment)	~ 15 points	~ 20 points Accurate implementation of a complex deployment Realistic, visible deployment	1 ____/____ 2 ____/____ 3 etc ____/____																																																																																																																
<b>Active Guidance</b> 10-50 points 50 points maximum	~ 10 points Poor or minimally visible control Unrealistic flight path	~ 25 points Somewhat emulates the prototype's flight path	~ 50 points Precise emulation of prototype's documented flight path/attitudes during boost, transition & recovery	____/____																																																																																																																
<b>Minor Effects/Functions</b> 5 points per documented function	5 points each Examples: Rocket spin; chaffe ejection; in-flight venting/tracking smoke generation; non-vertical "scale" launch angle			1 ____/____ 2 etc ____/____																																																																																																																
<b>Clustering &amp; Air-Start</b> 90 points maximum all stages  Primary Motor = Within two impulse categories of largest motor in a stage  Secondary Motor = More than two impulse categories smaller than the largest motor in a stage	<div> <div>For each stage with multiple motors:</div> <table border="1"> <thead> <tr> <th></th> <th colspan="15"># of Secondary Motors in the Stage</th> </tr> <tr> <th></th> <th>0S</th><th>1S</th><th>2S</th><th>3S</th><th>4S</th><th>5S</th><th>6S</th><th>7S</th><th>8S</th><th>9S</th><th>10S</th><th>11S</th> </tr> </thead> <tbody> <tr><td>1P</td><td>0</td><td>6</td><td>9</td><td>12</td><td>15</td><td>19</td><td>23</td><td>27</td><td>31</td><td>35</td><td>39</td><td>40</td></tr> <tr><td>2P</td><td>16</td><td>19</td><td>22</td><td>25</td><td>28</td><td>31</td><td>34</td><td>37</td><td>40</td><td>40</td><td>40</td><td>40</td></tr> <tr><td>3P</td><td>20</td><td>23</td><td>26</td><td>29</td><td>32</td><td>35</td><td>38</td><td>40</td><td>40</td><td>40</td><td>40</td><td>40</td></tr> <tr><td>4P</td><td>24</td><td>27</td><td>30</td><td>33</td><td>36</td><td>39</td><td>40</td><td>40</td><td>40</td><td>40</td><td>40</td><td>40</td></tr> <tr><td>5P</td><td>28</td><td>31</td><td>34</td><td>37</td><td>40</td><td colspan="7" rowspan="4">Includes all ignited motors in the stage (e.g. cluster, spin, retro, air-started)</td></tr> <tr><td>6P</td><td>32</td><td>31</td><td>34</td><td>37</td><td>40</td></tr> <tr><td>7P</td><td>36</td><td>39</td><td>40</td><td>40</td><td>40</td></tr> <tr><td>8P</td><td>40</td><td>40</td><td>40</td><td>40</td><td>40</td></tr> </tbody> </table> </div> <div>           (Motors beyond the "scale" number at a location are not counted)         </div>			# of Secondary Motors in the Stage																0S	1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S	1P	0	6	9	12	15	19	23	27	31	35	39	40	2P	16	19	22	25	28	31	34	37	40	40	40	40	3P	20	23	26	29	32	35	38	40	40	40	40	40	4P	24	27	30	33	36	39	40	40	40	40	40	40	5P	28	31	34	37	40	Includes all ignited motors in the stage (e.g. cluster, spin, retro, air-started)							6P	32	31	34	37	40	7P	36	39	40	40	40	8P	40	40	40	40	40	<b>Points Awarded for Cluster Realism:</b> Starting from 10 points, deduct for deviations from the "scale" positions of the motors. 0 points if positions can't be determined from the substantiation data.  <b>Points Awarded for Air-Start:</b> 10 points for each instance of air-start ignition of motor(s), including a clustered upper stage. Deduct up to 5 point for out-of-sequence ignition.	Ignited Motors: ____/____ (60 max)  Cluster Realism: ____/____ (10 max)  Air-Start: ____/____ (20 max)
	# of Secondary Motors in the Stage																																																																																																																			
	0S	1S	2S	3S	4S	5S	6S	7S	8S	9S	10S	11S																																																																																																								
1P	0	6	9	12	15	19	23	27	31	35	39	40																																																																																																								
2P	16	19	22	25	28	31	34	37	40	40	40	40																																																																																																								
3P	20	23	26	29	32	35	38	40	40	40	40	40																																																																																																								
4P	24	27	30	33	36	39	40	40	40	40	40	40																																																																																																								
5P	28	31	34	37	40	Includes all ignited motors in the stage (e.g. cluster, spin, retro, air-started)																																																																																																														
6P	32	31	34	37	40																																																																																																															
7P	36	39	40	40	40																																																																																																															
8P	40	40	40	40	40																																																																																																															
<b>Additional Notes:</b> <ul style="list-style-type: none"> <li>* Failure of a function (e.g. a cluster motor misfire) doesn't result in deduction of Mission points, though it may impact the General Flight score.</li> <li>* All of the attempted Mission elements must be documented in the scale substantiation data. Exceptions: Staging (if the prototype is obviously a multistage vehicle); Rocket spin (if the prototype is an unguided sounding rocket); Gliding flight (if the prototype is a winged vehicle).</li> <li>* Deployment Operation is a change in the external configuration of the airframe by parts which remain attached to the airframe (e.g. landing gear deployment, drag flap deployment, scale spring-loaded fins). Also includes a sequenced recovery system (e.g. drogue chute/main chute).</li> </ul>				____/____ <b>Mission Points Total</b> (200 points max)																																																																																																																