**Thermodynamics**

**Checklist for Division B & C**

Science Olympiad 2018-2019 Season

Version 1.0

<table>
<thead>
<tr>
<th>Team Number:</th>
<th>_____</th>
<th>Division: _____</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Name:</td>
<td>___________________</td>
<td></td>
</tr>
<tr>
<td>Student Names:</td>
<td>___________________</td>
<td>___________________</td>
</tr>
</tbody>
</table>

### Impound Checklist

- □ 1 One insulated device (ideally labeled with team name and number)
- □ 3.a One unaltered (glass or plastic) standard 250 mL beaker
- □ 2.c Device diagram, graphs and/or tables for scoring

### Construction Checklist

- □ 3.a No asbestos, mineral wool, fiberglass, commercial Thermos/cooler/vacuum in device
- □ 3.b Device fits within 20.0 cm (Div B) / 15.0 cm (Div C) cube
- □ 3.c Device has ≥ 0.5 inch diameter hole above beaker
- □ 2.c Beaker can be inserted/removed from device
- □ 3.d Top of hole <12 cm above inside bottom surface of beaker
- □ 3.e Device has no energy sources

### Device Testing

- □ 2.f Competitors wear eye protection while setting up device and receiving source water
- □ 3.d With exception of cotton ball, hole remains open and unobstructed during the competition

### Starting Data - Recorded when teams receive water

<table>
<thead>
<tr>
<th>Start Time</th>
<th>Source Water Temp (°C)</th>
<th>Room Temp (°C)</th>
<th>Prediction</th>
</tr>
</thead>
</table>

### Ending Data - Recorded at and of cooling period

<table>
<thead>
<tr>
<th>End Time</th>
<th>Final Internal Temp (°C)</th>
<th>Verification</th>
</tr>
</thead>
</table>

### Verification - Initial to verify device testing data

- **INITIALS** Competitor(s)
- **INITIALS** Supervisor

### Penalties - No penalties unless otherwise noted

- □ 5.e Competition Violation(s)
- □ 5.f Construction Violation(s) Corrected
- □ 5.g No Device
- □ 5.f Missed Impound
- □ 5.g DQ for Unsafe operation

Rationale: ___________________

Supervisor Initials: ________

### Graphs / Tables - Each item can get up to two points

- 5.d.i _____ / 2 Data spans at least one variable listed in 4.l.a
- 5.d.ii _____ / 2 At least 10 data points per data series
- 5.d.iii _____ / 2 Proper labeling (e.g. title, team name, units)
- 5.d.iv _____ / 2 0.5 pts for each graph / table (up to 2 points total)
- 5.d.v _____ / 2 Labeled device picture / diagram

### Written Exam

- □ 2.a Reference materials secured in 3 ring binder
- □ 2.b Competitors bring up to 2 calculators

Exam Score