

### Checklist 1: Compliance With Science Checklist

Paper title:		5. Data are valid (true measures) and reliable (repeatable measures)		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?
Reviewer:	Date:	Time spent (minutes):		
<b>Instructions for Raters</b> 1. Skim the paper while you complete the checklist <i>as a skeptical reviewer</i> . 2. Rate each lettered item, below, marking the relevant checkbox to indicate True if the research complies, F/? (False/Unclear) if the research does <i>not</i> comply, or if you are unsure. <b>IMPORTANT:</b> If you are <i>not convinced</i> that the paper complied, rate the item F/? 3. If you rate an item True, <i>give reasons for your rating in your own words</i> . 4. Rate criteria 1-8 as True by marking the checkbox only if all lettered items for the criterion are rated T.				
<b>First assess whether the paper complies with the lettered items under each criterion below. Then assess whether it complies with each of the eight criteria based on compliance with the lettered items. Avoid speculation.</b>				
<b>1. Problem is important for decision making, policy, or method development</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?		
a. Importance of the problem clear from the title, abstract, result tables, or conclusions		<input type="checkbox"/> <input type="checkbox"/>		
b. Findings add to cumulative scientific knowledge		<input type="checkbox"/> <input type="checkbox"/>		
c. Uses of the findings are clear to you		<input type="checkbox"/> <input type="checkbox"/>		
d. The findings can be used to improve people’s lives without resorting to duress or deceit		<input type="checkbox"/> <input type="checkbox"/>		
<b>2. Prior knowledge was comprehensively reviewed and summarized</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?		
a. The paper describes objective and comprehensive procedures used to search for prior useful scientific knowledge		<input type="checkbox"/> <input type="checkbox"/>		
b. The paper describes how prior substantive findings were used to develop hypotheses (e.g. direction and magnitude of effects of causal variables) and research procedures		<input type="checkbox"/> <input type="checkbox"/>		
<b>3. Disclosure is sufficiently comprehensive for understanding and replication</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?		
a. Methods are fully and clearly described so as to be understood by all relevant stakeholders, including potential users		<input type="checkbox"/> <input type="checkbox"/>		
b. Data are easily accessible using information provided in the paper		<input type="checkbox"/> <input type="checkbox"/>		
c. Sources of funding are described, or absence of external funding noted		<input type="checkbox"/> <input type="checkbox"/>		
<b>4. Design is objective (unbiased by advocacy)</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?		
a. Prior hypotheses are clearly described (e.g., regarding directions and magnitudes of relationships, and effects of conditions)		<input type="checkbox"/> <input type="checkbox"/>		
b. All reasonable hypotheses are included in the design, including plausible naïve, no-meaningful-difference, and current-practice hypotheses		<input type="checkbox"/> <input type="checkbox"/>		
c. Revisions to hypotheses are described, or absence of revisions noted		<input type="checkbox"/> <input type="checkbox"/>		
		<b>6. Methods were validated (proven fit for purpose) and simple</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?
		a. Methods were explained clearly and shown valid—unless well known to intended readers, users, and reviewers, and validity is obvious		<input type="checkbox"/> <input type="checkbox"/>
		b. Methods were sufficiently simple for potential users to understand		<input type="checkbox"/> <input type="checkbox"/>
		c. Multiple validated methods were used		<input type="checkbox"/> <input type="checkbox"/>
		d. Methods used cumulative scientific knowledge explicitly		<input type="checkbox"/> <input type="checkbox"/>
		<b>7. Experimental evidence was used to compare alternative hypotheses</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?
		a. Experimental evidence was used to compare hypotheses under explicit conditions		<input type="checkbox"/> <input type="checkbox"/>
		b. Predictive validity of hypotheses was tested using out-of-sample data		<input type="checkbox"/> <input type="checkbox"/>
		<b>8. Conclusions follow logically from the evidence presented</b>		<input type="checkbox"/> True <input type="checkbox"/> T <input type="checkbox"/> F/?
		a. Conclusions do not go beyond the evidence in the paper		<input type="checkbox"/> <input type="checkbox"/>
		b. Conclusions are not the product of confirmation bias		<input type="checkbox"/> <input type="checkbox"/>
		c. Conclusions do not reject a hypothesis by denying the antecedent		<input type="checkbox"/> <input type="checkbox"/>
		d. Conclusions do not support a hypothesis by affirming the consequent		<input type="checkbox"/> <input type="checkbox"/>
<b>Describe the most important scientific finding in your own words.</b>				
<b>Sum the criteria (1–8) rated True for compliance: [   ] of 8</b>				

From Armstrong, J. S., & Green, K. C. (2020) *The Scientific Method*. Forthcoming.