Test of Science Related Attitudes (TORSA)

**Instrument Name:** Test of Science Related Attitudes (TOSRA)

**Scale/Subscale Name:** Attitude towards science

**Source:** [www.pearweb.org](http://www.pearweb.org)

**Developers:** Fraser (1978), School of Education, Macquarie University, North Ryde, NSW, 2113, Australia

**Year:** 1978, (1981 current version)

**Target Audience(s):** Middle School and High School students

**Language other than English available:** Not available, however TOSRA is utilized in many countries, suggesting that the TOSRA is available in other languages.

**Type:** Attitude

**Data collected:** Quantitative

**Data collection format:** 70, 5-pt Likert scale items; Self report - Pre/post

**Reading Level:** Flesch-Kincaid Grade level: 8.5

**Existence of test/technical manuals, user guides, supplemental materials:** Handbook available (Fraser, 1981)

**Level of training necessary for administration/scoring/interpretation:** None necessary for administration. Basic understanding of statistical methods necessary for scoring.

**Widespread Use/Professional Endorsements:** TOSRA listed on the Pearweb.org, "Assessment Tools in Informal Science (ATIS)" website; TOSRA has been widely used in science education research (Lang, Wong, & Fraser, 2005; Cheung, 2009).

**Cost of Use:** No cost is associated with the use of this survey; Fraser requests that comments and validation data be sent to the author (School of Education, Macquarie University, North Ryde, NSW, 2113, Australia).
Description:
- The TOSRA was developed to measure seven science-related attitude scales: social implications of science, normality of scientists, attitude toward scientific inquiry, adoption of scientific attitudes, enjoyment of science lessons, leisure interest in science, & career interest in science.
- The TOSRA has been extensively field tested and is commonly used in science education research and evaluation.
- Scores are meant to be interpreted only at the scale level, not as a whole instrument.
- 10 items

Psychometrics:  
Information on reliability and validity are provided below. If information on a particular psychometric was not found, it is indicated as "no information provided." It should be noted that this is not necessarily an indication of a lack of reliability or validity within a particular scale/instrument, but rather a lack of rigorous testing, for various reasons, by the developers or other researchers.

Reliability: A correlation of at least .80 is suggested for at least one type of reliability as evidence; however, standards range from .5 to .9 depending on the intended use and context for the instrument.

**Internal Consistency:** .82; has been shown to be highly reliable over time; scale reliabilities (year 10 sample): .82, attitude toward scientific inquiry, .67.  
**Inter-rater reliability:** No information provided  
**Test-Retest:** From Years 8 and 9 samples (238 students): .78 (mean of scales); attitude toward scientific inquiry, .75.

Validity: The extent to which a measure captures what it is intended to measure.

**Content/Face Validity:** Extensive empirical validation, sound theoretical basis.  
**Criterion Validity:** No information provided  
**Construct Validity:** Discriminant validity (mean correlations with other scales): attitude toward scientific inquiry, .33, (Fraser, 1978, 1981) found seven unique factors, however subsequent analyses suggest possibility of fewer unique factors (Cheung, 2009).
References:

