Testing and the ASP

Both "unit testing" and "integration testing" can be handled by testing classes.

*** Choice ***

The designer and the implementer of a class are responsible for devising and running tests for that class.

Reasons

- Not enough people to set up separate testing teams.
- It's clear who is responsible for testing.
- Tests can be reviewed at same time as design or code.

What does testing involve?

- Devise a test plan to check that requirements can be satisfied (ie define which tests to make and how they are to be done).
- Provide "black box" tests for all methods in the class (ie see that right outputs are produced for given inputs)
- Carry out "white box" tests (ie see the instruction sequence follows the right path through the code for various inputs).
- Check that computations produce results in agreement with physics data.
- Check that performance constraints are satisfied.

Responsibilities: checking correctness

*** Choices ***

- The class designer is responsible for the test plan. This must be submitted to the design review.
- The class implementer is responsible for black box testing. A description of the tests and their results must be submitted to the code review.
- The implementer must show that the same code compiles and runs on all Atlas-supported platforms.
- The implementer is responsible for white box testing, but the tests are not reviewed.

Responsibilities: quantitative checks

*** Choices ***

- The implementer must show that compatible numerical results are obtained across Atlas-supported platforms.
- If possible, a comparison of output against known physics results should be submitted to the code review.
- If possible, results of performance measurements should be submitted to the code review.
- The Software Librarian may request additional tests after the class has been accepted for general use.

Things to do

- Decide on content and format for test plans and how this information will be presented in the Design Report.
- Decide on how tests are to be set up and documented and how they are to be presented at a code review.

  *** Choice ***

  Each class should have a "test" method.
- Add details about testing to rules for design and code reviews.
- Define the rules about re-testing during maintenance.