National Science Resources Center

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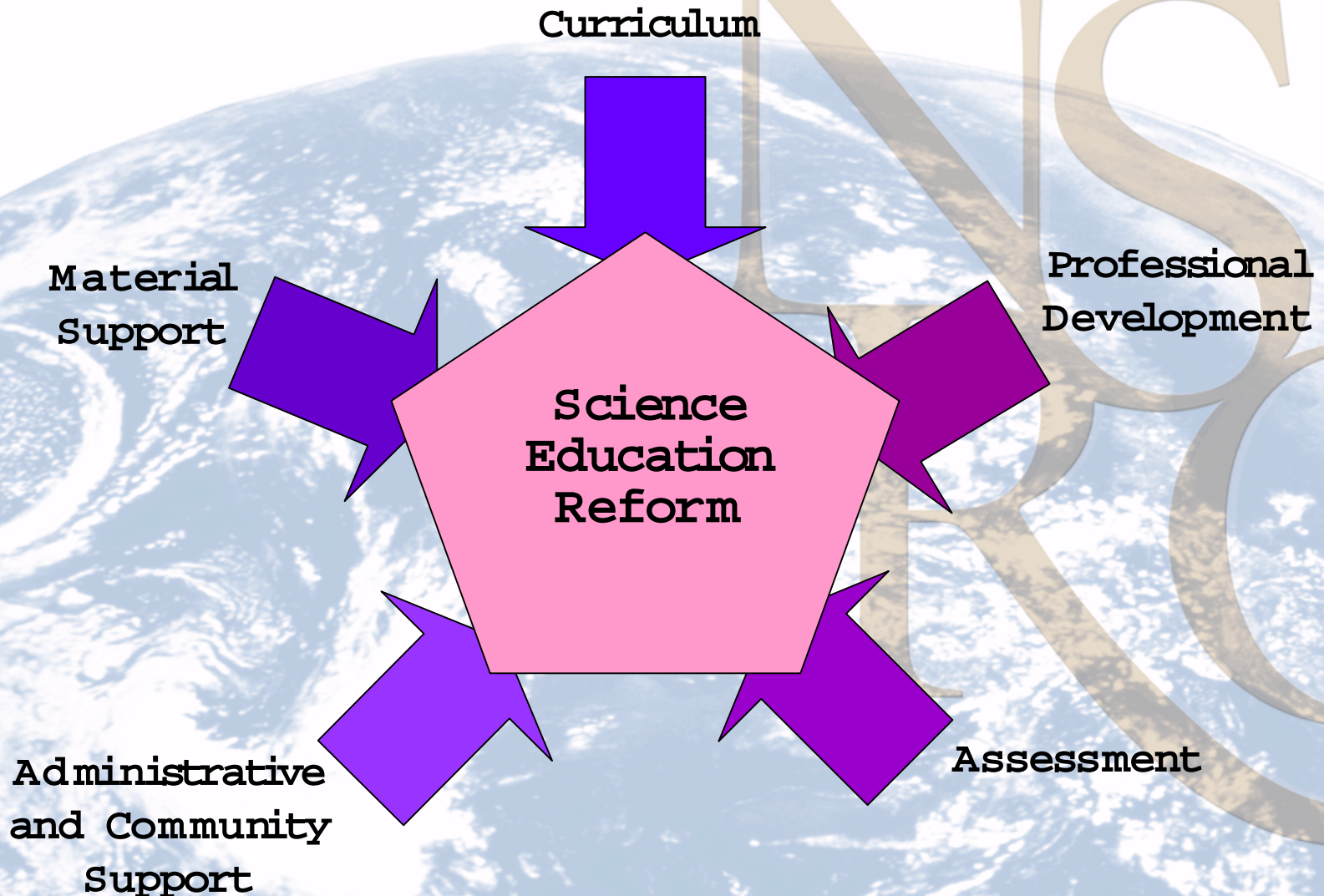
The NSRC Professional Development Center: Working Towards Improving the Quality of Inquiry Science Teaching and Learning

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PD: One component of NSRC's model for science education reform

The PD Center: One of three centers within the NSRC

- **The Professional Development Center**
- The LASER Center (Outreach)
- The Curriculum Development Center

Some Recognized Characteristics of High Quality Professional Development

- Aligns with and supports system based changes that promote student learning ["Elements of Reform"]

- Is informed by best available research and practice in teaching and learning

- Has the teaching of students and their learning at the core of the experience

- Is sustained and uses a wide range of strategies

- Builds upon existing knowledge and experiences

Good PD has the teaching of students and their learning at the core of the experience

- Encompasses aspects of teacher organization, presentation and practice
- Includes content delivered using exemplary pedagogical techniques
- Encourages teachers to think about how students come to understand science concepts.
- Includes appropriate reference to student development.
- Contextualized to available exemplary curriculum materials

PD Center Goals

- Create a line of PD materials and services to support and promote the implementation of inquiry-based science

- Provide contextualized PD to support NSRC developed curriculum products (STC & STC/MS)

- Support science PD initiatives by developing partnerships with school districts, organizations, corporations and educational establishments

Professional Development Strategies Adopted

- Curriculum implementation (supporting districts currently using NSRC curriculum)
- Immersion into inquiry
- Creating a continuum of structured courses, workshops and experiences with a balance of pedagogy and content
- Bringing teachers into the world of scientists
- Providing support for new initiatives

Developing the Strategy

- Research existing PD approaches and materials
- Identify short- and long-term PD needs for STC/MS and STC
- Determine customers and identify niches for PD
- Obtain financial support
- Establish procedures and pricing structures
- Create a suite/continuum of products
- "Deliver" products
- Expand customer-base
- Develop partnerships
  - University initiatives
  - Corporate sponsorship of specific events

PD Center Products—Initial Focus on Middle School

- Overview and awareness
- STC/MS Module 3-day implementation
- Module related "advanced" teacher and teacher leader courses
- Enhancement courses (STC/MS and General)
  - Inquiry
  - Use of technology (Probeware and Computers)
  - Notebooks
  - Literacy Strategies
- Middle School Content Course Syllabi for Graduate Credit
- Museum-based "Summer Academies"

Valid professional development experiences

- Provide a continuum of PD experiences designed to provide a progression of experiences.

Novice   Competent   Expert   Coach

5+ years
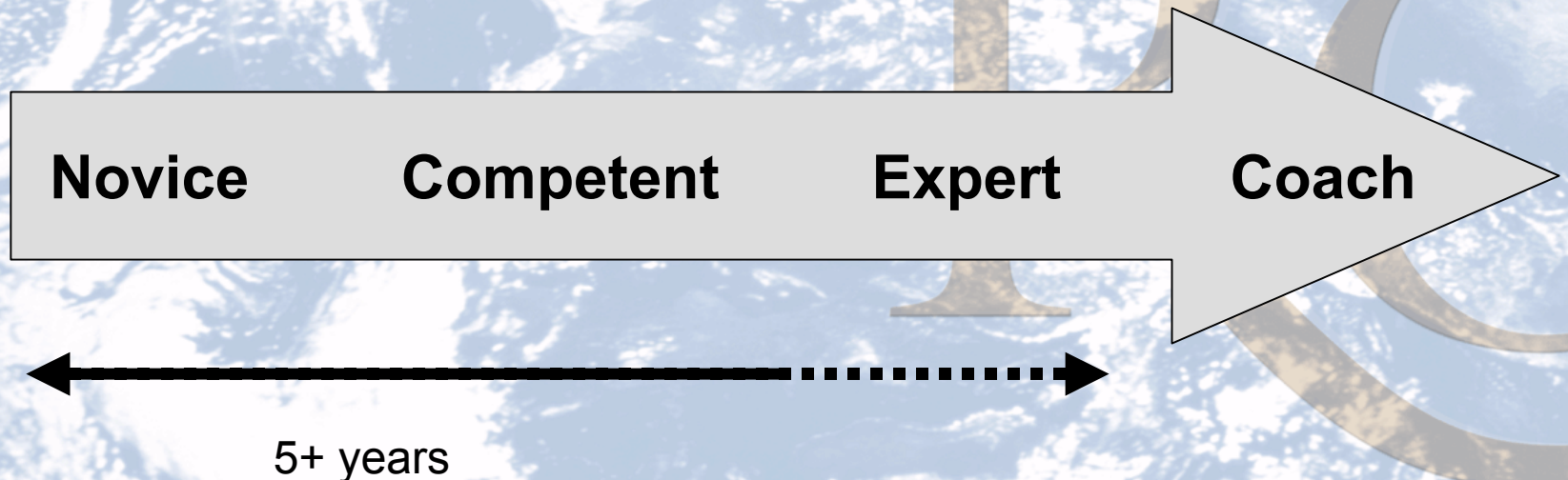
Example Strategy for Middle School Implementation Courses

- Customer on-site delivery

- Module specific courses

- Medium length courses (21hours)

- Standardized design

- Consultant presented

- Fee for service

Creating a Cadre of Consultants

- STC/MS users and developers
- Master teachers or trainers in their own district
- (Ex-teachers and teacher trainers)
- NSRC trained and supported with training and documentation
- Paid per delivery

Reflecting and evaluation

- Learning outcomes from each experience:
  - Short pre- and post-testing for participants
  - Participant evaluation: response and reaction
- State assessments
- Teacher practice—evidence for changes in
  - pedagogy
  - command and use of content
- Participant requests for additional PD
- Organization response and changes