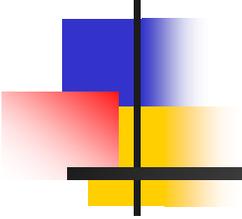


Improving Math and Science Education: A Strategic Necessity

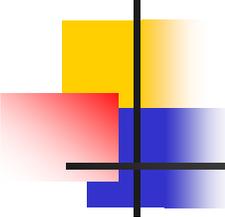


Virginia Mathematics and Science Coalition

presentation to the
Joint Subcommittee

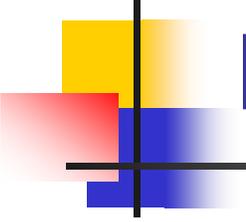
Studying Science, Math, and Technology Education in
the Commonwealth at the Elementary, Secondary,
and Undergraduate Levels

July 16, 2007



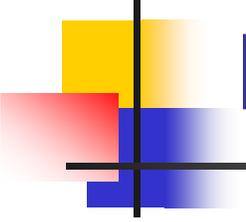
I. Why Is Math and Science Education So Important?

- Experiencing:
 - Rapid innovation in technology and scientific progress
 - Increasing global competition
 - Issues raised affect our lives and those of future generations
- Need:
 - Better learning and use of math, science and technology



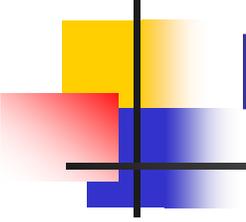
I. Why Is Math and Science Education So Important? (cont.)

- Better educated/skilled individuals
 - Essential to understand math and science
 - Higher skills
 - Better problem solvers
 - More critical thinkers
 - Inventive thinkers
 - Better decision-makers
- More informed citizenry and policy-makers



I. Why Is Math and Science Education So Important? (cont.)

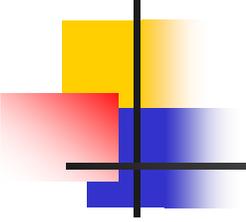
- Stronger economy
 - Higher skilled workforce and management
 - Virginia enhanced as leader in math, science and technology:
 - Yields improved opportunity
 - Yields increased innovation
- Better Virginia and nation



I. Why Is Math and Science Education So Important? (cont.)

BOTTOM LINE:

Excellent and enduring math and science education is of strategic importance.



II. Some Challenges

- Math and science teacher shortage
- Developing well prepared and qualified math and science teachers
- Need for new models of teaching
- How to implement technology, new media



II. Some Challenges (cont.)

- New Teachers

- More than 300 new middle school mathematics and science teachers will be needed each year in Virginia (based on 1997 estimate)
- **But, only 10 to 20 produced each year**
- Condition persists today
- Rate of preparation of teachers certified for grades 6-12 is not sufficient either
- Market competition pulls many candidates away

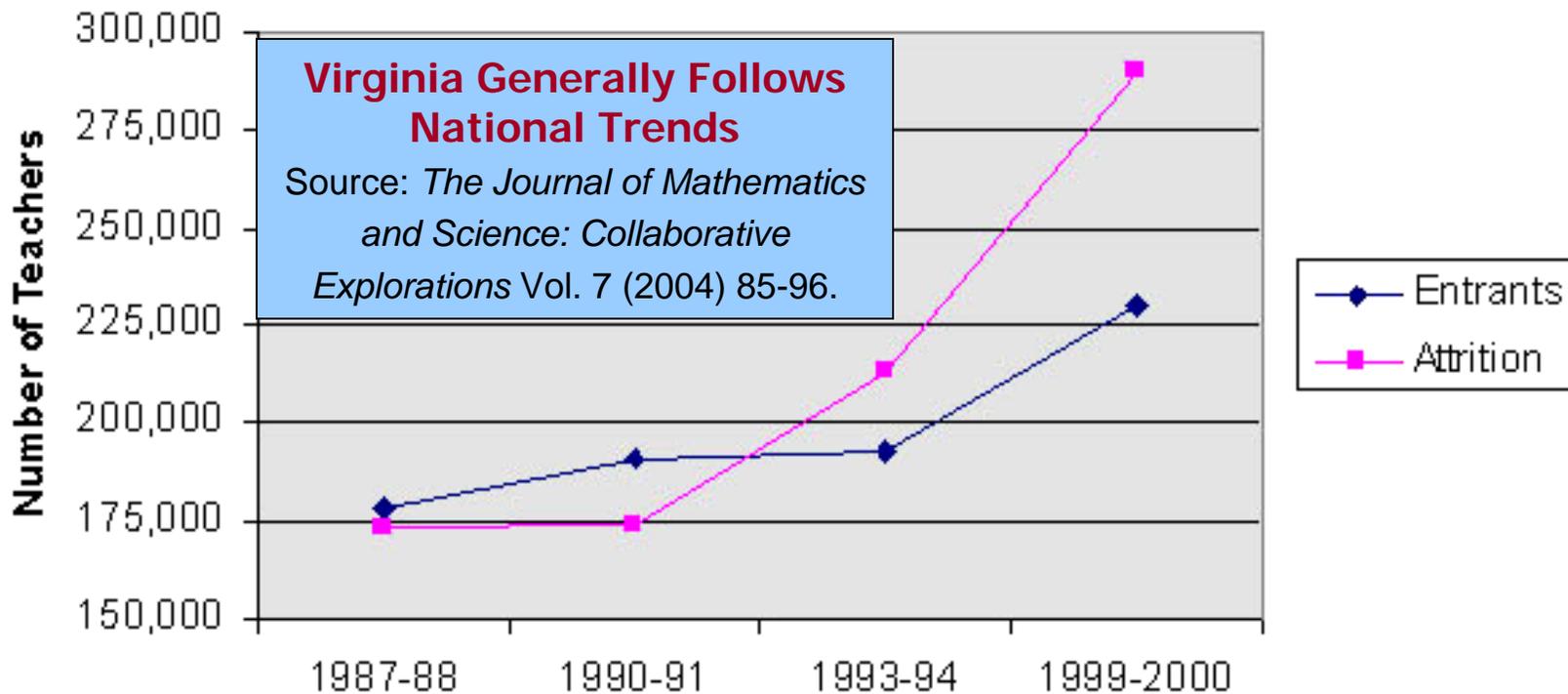


II. Some Challenges (cont.)

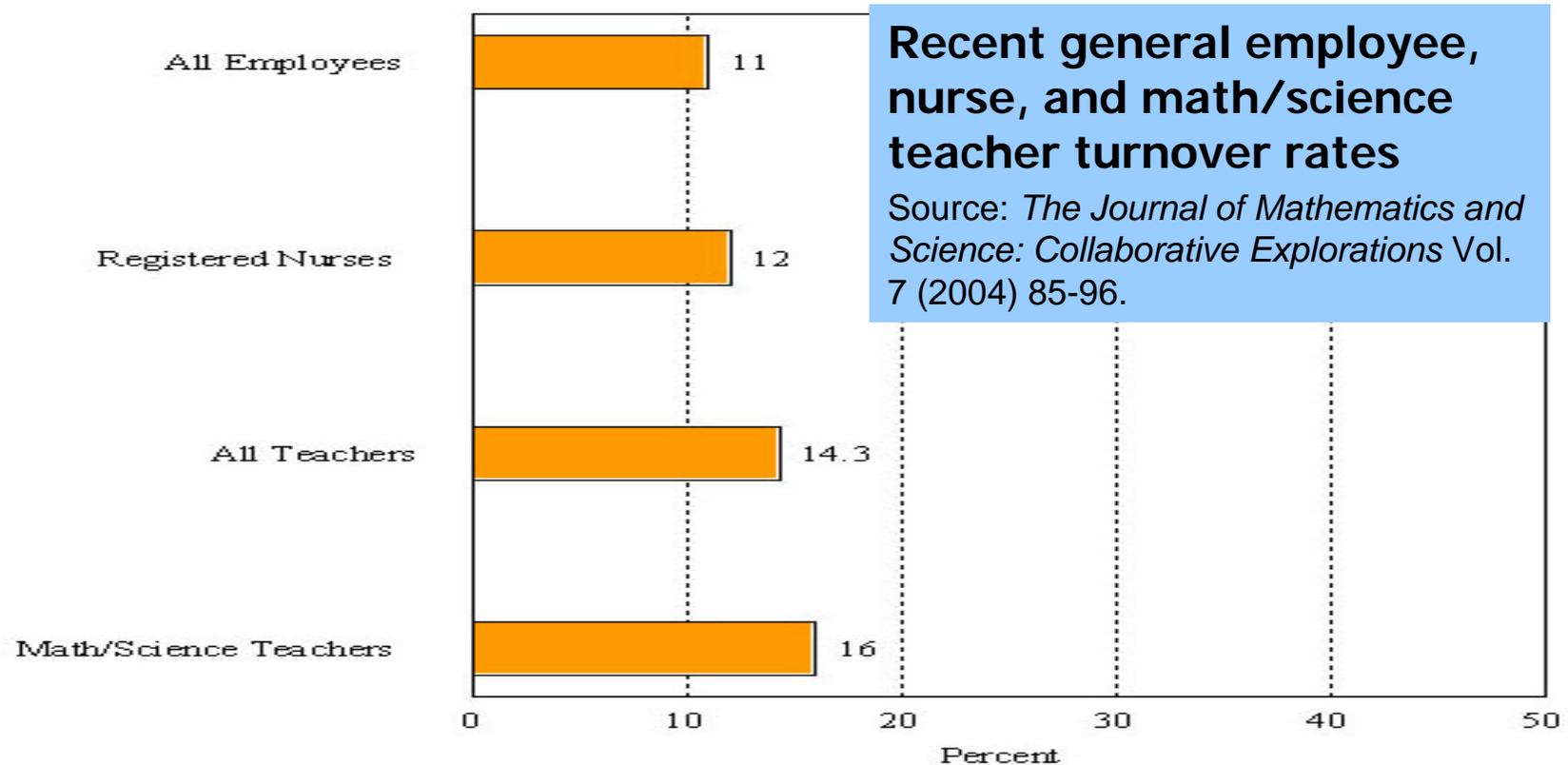
- Existing Teachers

- Differences in needs among K-5, 6-8, & 9-12
- Professional development opportunities often not helpful or attainable/convenient
- Often no degree or little formal education in subject area (VMSC survey)
- Turnover/attrition: a major concern

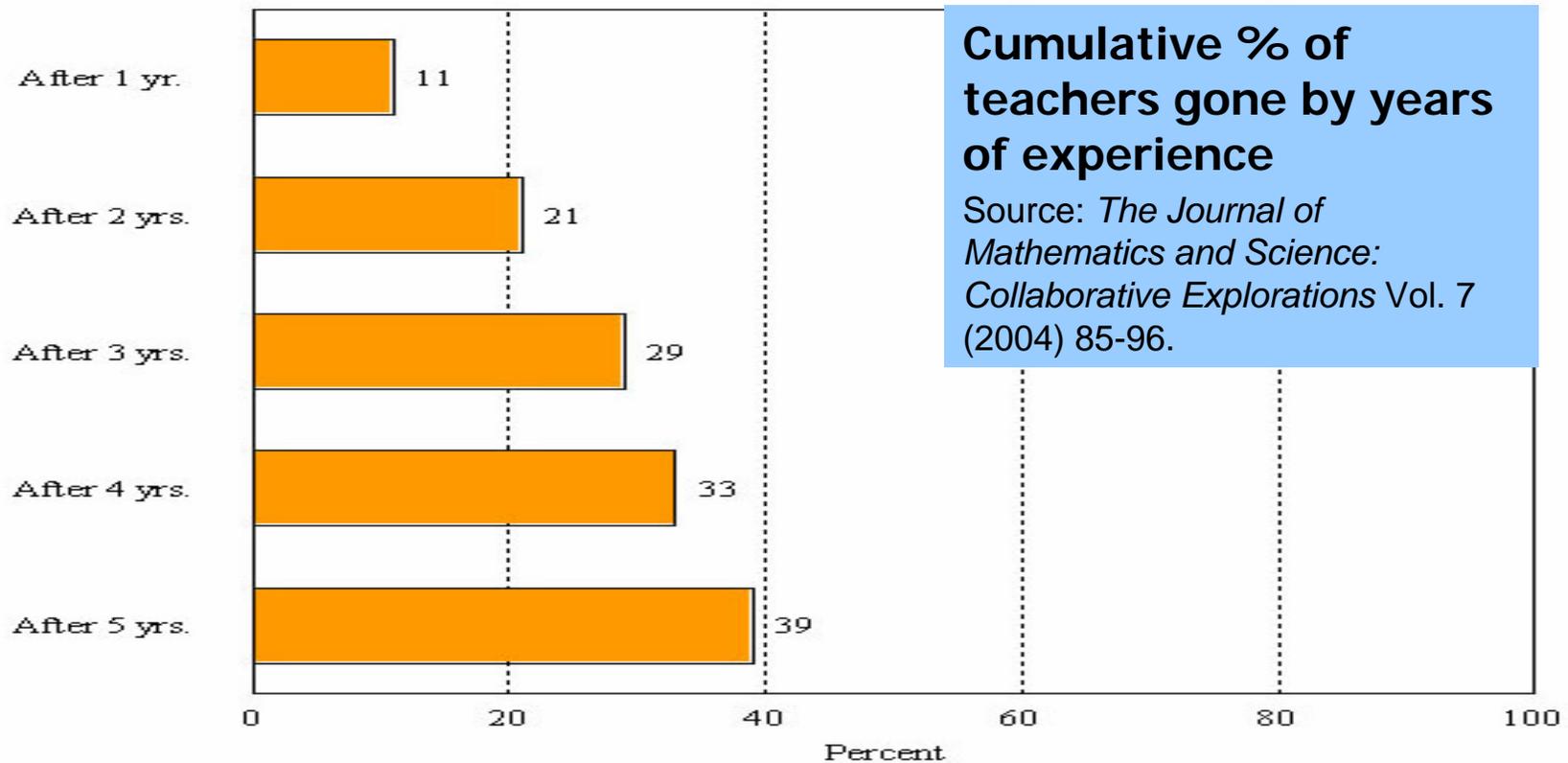
II. Some Challenges (cont.)



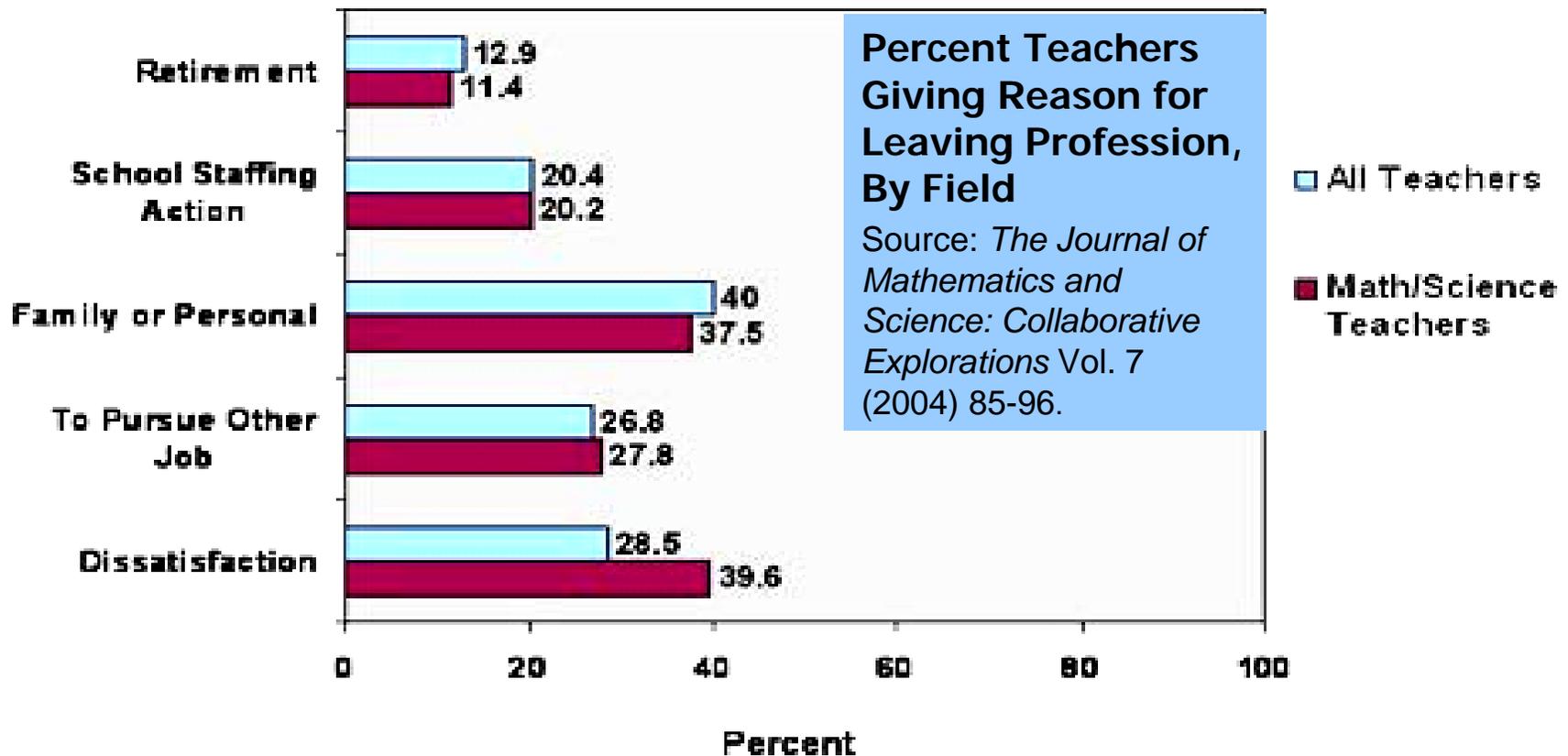
II. Some Challenges (cont.)



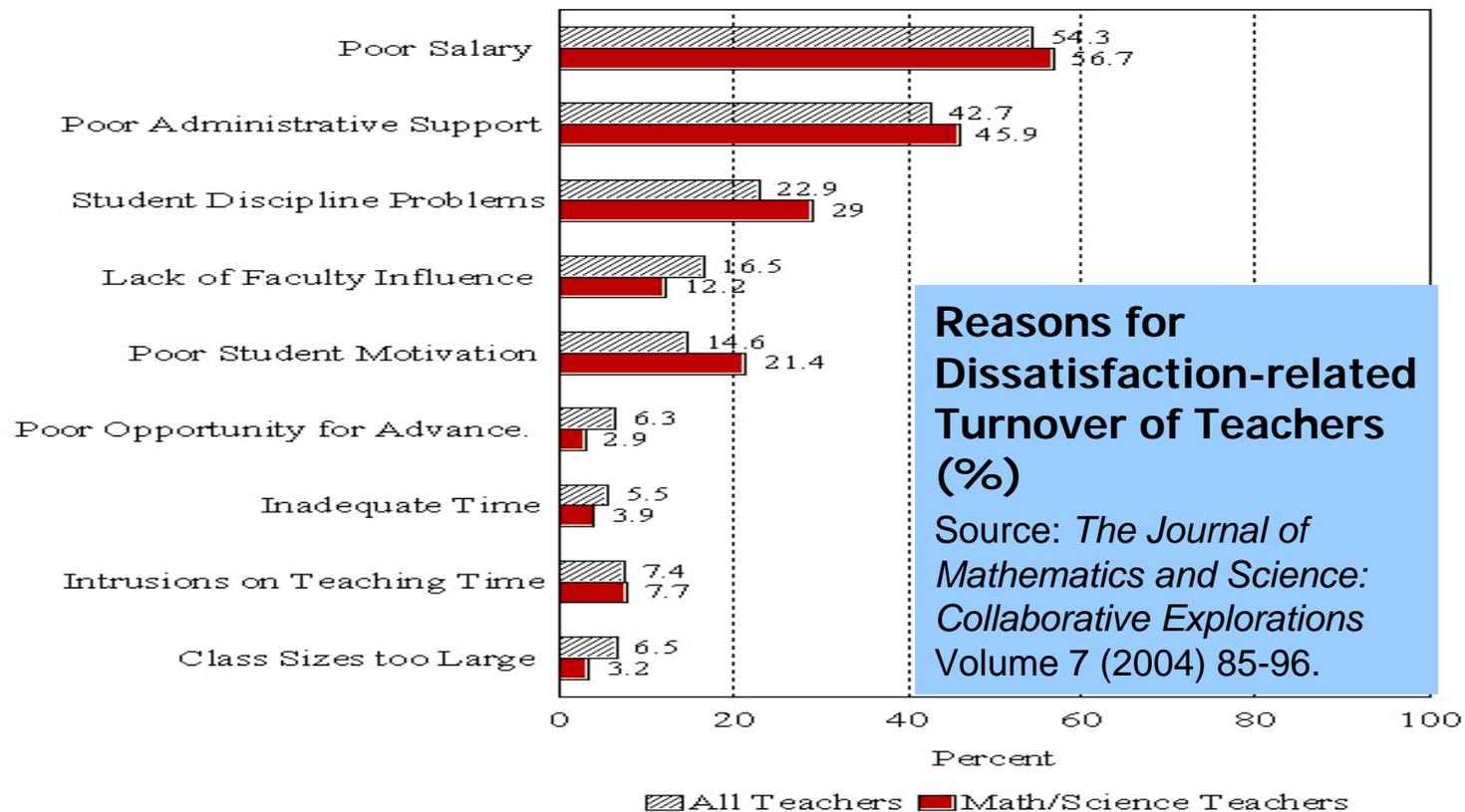
II. Some Challenges (cont.)

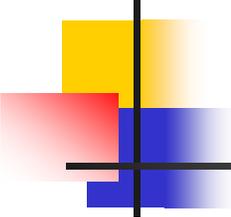


II. Some Challenges (cont.)



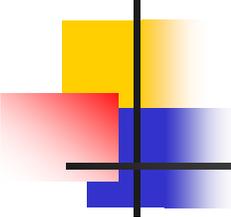
II. Some Challenges (cont.)





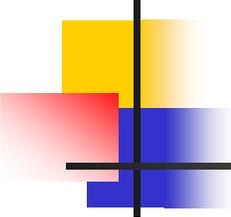
III. Worthy Current Efforts

- Increasing understanding of problems
- Math Specialist position
- Better professional development opportunities
- Recognition of methods that work
- Statewide Masters Degree Program
- Consideration of Science Specialist position
- Broader recognition and funding (ExxonMobil)



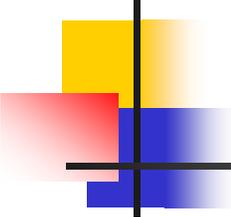
IV. Recommendations

1. Detailed/updated research of problems
2. Better math and science teacher preparation
3. Better professional development opportunities (e.g., Statewide Masters Degree)
4. Support preparation and implementation of Math Specialists
5. Consider Science Specialist position



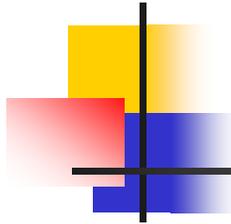
IV. Recommendations (cont.)

6. Consider possible economic incentives
7. Review & (as needed) revise SOQ/SOL
8. Review & (as needed) revise licensure requirements
9. Ensure proper funding and investment
10. Develop coordinated strategy



V. Conclusions

- Math and science education is a strategic issue
- We have major hurdles to overcome
- Good efforts are already underway
- You can act on VMSC recommendations



Questions/Discussion

Thank you.