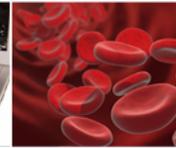




WHERE DISCOVERIES BEGIN



NSF STEM Education Programs

“Funding opportunities and quick tips for proposal application”

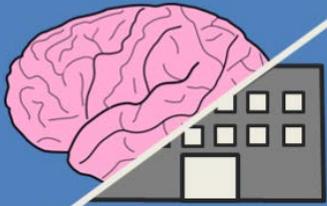
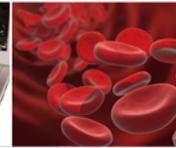
Division of Undergraduate Education (DUE)
Division of Human Resource Development (HRD)
Education and Human Resources Directorate (EHR)

Division of Undergraduate Education
Thomas Higgins, thiggin@nsf.gov

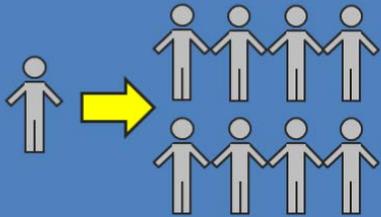
Division of Undergraduate Education
V. Celeste Carter, vccarter@nsf.gov

Division of Human Resource Development
Sylvia James, sjames@nsf.gov

Division of Human Resource Development
Jermelina Tupas, jtupas@nsf.gov



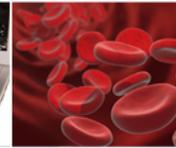
Learning & Learning Environments



Broadening Participation & Institutional Capacity



Workforce Development



EHR Organization Chart

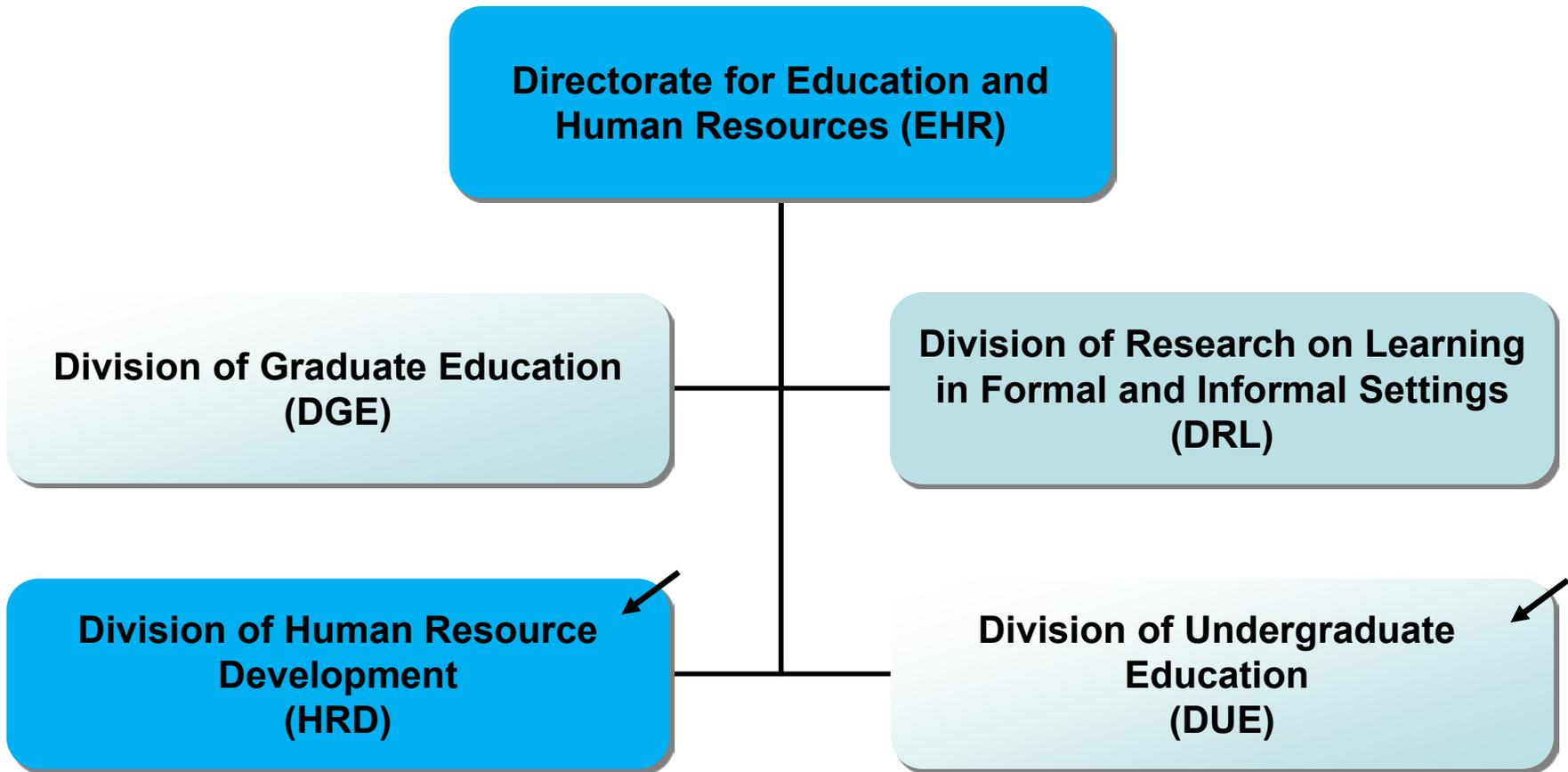
**Directorate for Education and
Human Resources (EHR)**

**Division of Graduate Education
(DGE)**

**Division of Research on Learning
in Formal and Informal Settings
(DRL)**

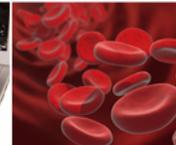
**Division of Human Resource
Development
(HRD)**

**Division of Undergraduate
Education
(DUE)**





WHERE DISCOVERIES BEGIN

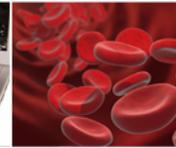


DUE's Mission:

To promote excellence in undergraduate science, technology, engineering, and mathematics (STEM) education for all students.

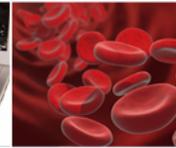
Potentially Tra  ormative Education R&D

Division of Undergraduate Education
Thomas Higgins, thiggin@nsf.gov



Selected STEM Education Programs

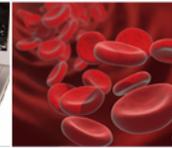
- Advanced Technological Education (ATE)
SOLICITATION: NSF 14-577
- Improving Undergraduate STEM Education (IUSE: EHR)
SOLICITATION: NSF 15-585
- Scholarships in STEM (S-STEM)
SOLICITATION: NSF 16-540



Advanced Technological Education (ATE) Program

ATE Goals

- Produce more qualified science and engineering **technicians** to meet workforce demands for existing and emerging advanced technological fields.
- Improve the technical skills and the general science, technology, engineering, and mathematics (STEM) preparation of these technicians and the educators who prepare them.
- Focuses on colleges that award **two-year degrees** and expects these colleges to have a **leadership role** on all projects
- Involve **partnerships** among two-year colleges, four-year colleges and universities, secondary schools, business, industry, and government.



ATE Program

Three Program Tracks

ATE Projects

Up to \$900K, Up to 3 yrs

except

Small/New to ATE:

Up to \$200K for 4 yrs

Coordination Networks:

Up to \$800K for 4 yrs

Targeted Research in Technician Education

From \$150K, Up to 2 yrs to \$800K, Up to 3 yrs

ATE Centers

Three Types

National

Up to \$4M
5 yrs

Regional

Up to \$3M
4 yrs

Support Centers

Up to \$1.6M
4 yrs



Improving Undergraduate STEM Education (IUSE: EHR)



Competitive proposals should **build on available evidence and theory, generate evidence, and build knowledge.**



Improve STEM Learning & Learning Environments:

Improve the knowledge base for defining, identifying, and innovating effective undergraduate STEM education teaching and learning for all NSF-supported disciplines, and foster widespread use of evidence-based resources and pedagogies in undergraduate STEM education



Build the Professional STEM Workforce for Tomorrow:

Improve the preparation of undergraduate students so they can succeed as productive members of the future STEM workforce, regardless of career path, and be engaged as members of a STEM-literate society



Broaden Participation & Institutional Capacity for STEM Learning:

Increase the number and diversity of undergraduate students recruited and retained in STEM education and career pathways through improving the evidence base for successful strategies to broaden participation and implementation of the results of this research



IUSE: EHR Program

Two Program Tracks

Engaged Student Learning

Focus on designing, developing, and implementing research on STEM learning models, approaches, and tools

Institutional and Community Transformation

Focus on increasing the propagation of highly effective methods of STEM teaching and learning

Two Approaches

Two Approaches

Exploration & Design
(smaller scale)

Up to \$300K
Up to 3 yrs

Development & Implementation
(larger scale)

Level I:
Up to \$600K, Up to 3 yrs

Level II:
\$600K to \$2M, Up to 5 yrs

Exploration & Design
(smaller scale)

Up to \$300K
Up to 3 yrs

Development & Implementation
(larger scale)

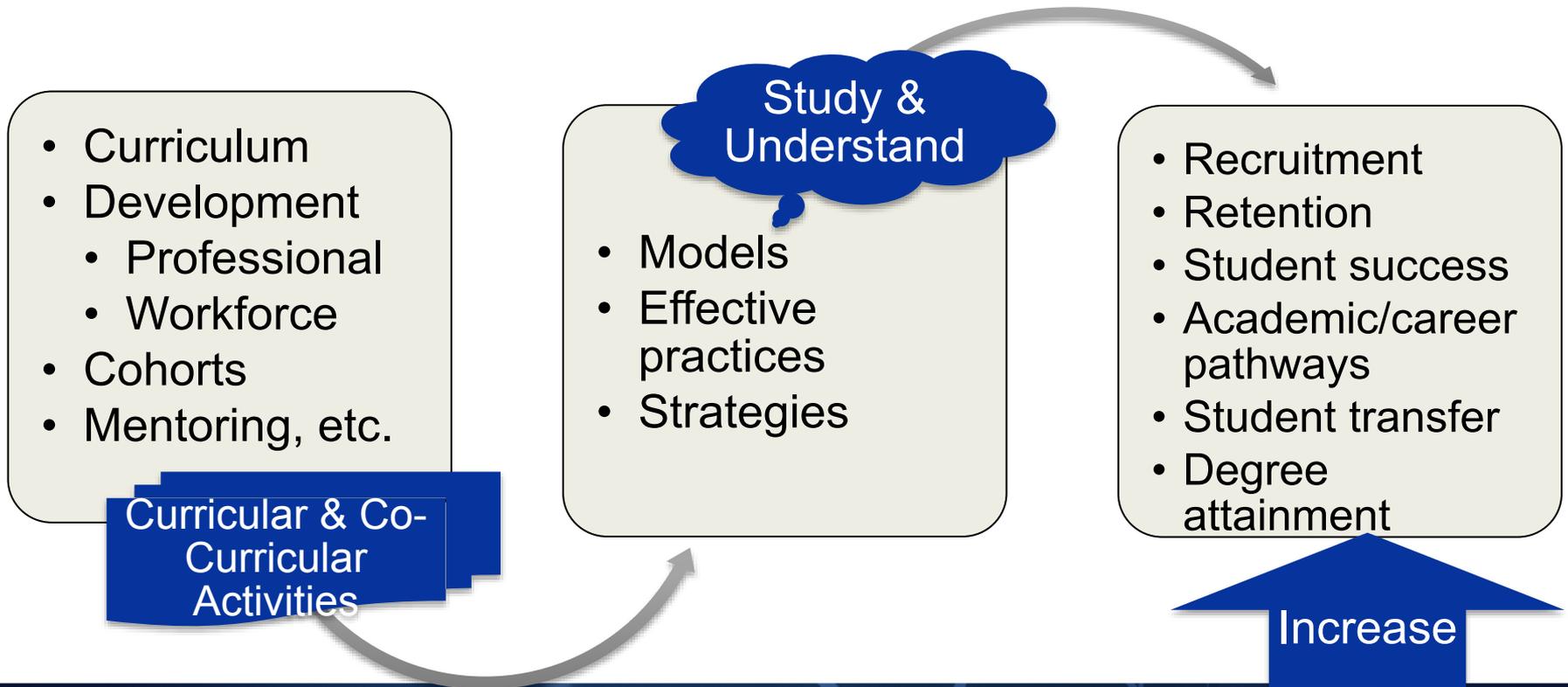
Up to \$3M
Up to 5 yrs



NSF Scholarships in STEM (S-STEM) Program

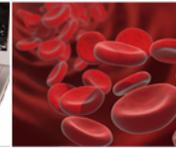
Supports institutional **scholarship programs** for **full-time, academically-talented STEM students** with **demonstrated financial need**.

- Scholarship Amount: Up to \$10,000 per student per year (depending on **financial need**)
- 60% of Budget to Scholarships – 40% to Student Support, Admin., Research, Evaluation



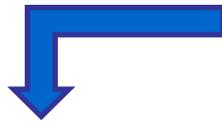


WHERE DISCOVERIES BEGIN



S-STEM Program

Two Program Tracks



Institutional Capacity Building (Strand 1)

*For institutions with **limited experience** in implementing effective curricular and co-curricular activities*



Up to \$650K
Up to 5 yrs

Design and Development (Strand 2)

Two Types

Seeks to leverage S-STEM funds with institutional efforts and infrastructure to increase and understand impacts



**Single Institution
(Type 1)**

Up to \$1M
Up to 5 yrs

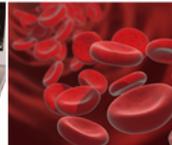


**Multi-institutional
Consortia
(Type 2)**

Up to \$5M
Up to 5 yrs



WHERE DISCOVERIES BEGIN



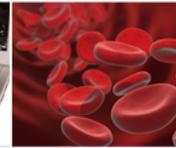
HRD's Mission:

To grow the innovative and competitive U.S. STEM workforce that is vital for sustaining and advancing the Nation's prosperity by supporting the broader participation and success of individuals currently underrepresented in STEM and the institutions that serve them.

HRD's Vision:

HRD envisions a well-prepared and competitive U.S. workforce of scientists, technicians, engineers, mathematicians, and educators that reflects the diversity of the U.S. population.

Division of Human Resource Development
Sylvia James, sjames@nsf.gov



HRD Programs

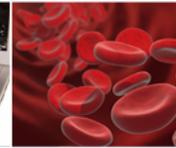
- **Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers (ADVANCE)**
- **Alliances for Graduate Education and the Professoriate (AGEP)**
- **Centers of Research Excellence in Science and Technology (CREST)**
- **Louis Stokes Alliances for Minority Participation (LSAMP)**

- **Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)**
- **Tribal Colleges and Universities Program (TCUP)**

- **White House Initiatives/Presidential Awards for:**
 - **Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)**
 - **Excellence in Mathematics and Science Teaching (PAEMST)**



WHERE DISCOVERIES BEGIN



ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers [NSF 16-594](#)

The goal of the ADVANCE Program is to develop systemic approaches to increase the representation and advancement of women in academic STEM careers, thereby contributing to the development of a more diverse science and engineering workforce. Recent solicitations have encouraged proposals for three types of awards:

- **Institutional Transformation (IT)**
- **Adaptation**
- **Partnerships**

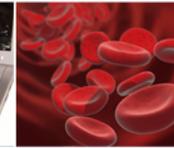
New!

- **Resource and Coordination Network**
- **Longitudinal Evaluation**





WHERE DISCOVERIES BEGIN



Centers of Research Excellence in Science and Technology (CREST) [NSF 16-525](#)

- CREST facilitates research projects in STEM disciplines with multi-year, multi-million dollar research centers at Minority Serving Institutions.
- HBCU-RISE supports the development of research capability at HBCUs that offer doctoral degrees in science and engineering disciplines.
- CREST Partnership Supplements – between CREST Centers and national labs, national research centers, K12 entities, etc.
- Postdoctoral Research Fellowships – For CREST Center doctoral recipients
- CREST and RISE strive to strengthen the national research competitiveness of minority-serving institutions while increasing the recruitment, retention, and graduation rates of individuals from diverse backgrounds in STEM fields.

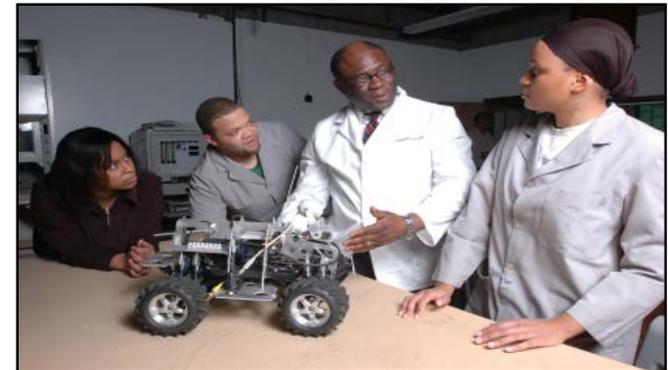


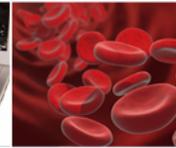
Louis Stokes Alliances for Minority Participation (LSAMP) [NSF 15-594](#)

- LSAMP is a multi-institutional and multi-disciplinary partnership supporting sustained and **comprehensive approaches to broadening participation at the baccalaureate level** that facilitate the production of historically underrepresented students who are well prepared in STEM and motivated to pursue graduate education.
- Institutionalizing, disseminating, and promoting the replication of strategies and approaches that have shown success in the transition of targeted undergraduate STEM students (e.g., African Americans, Hispanics, Native Americans, and Native Pacific Americans) into graduate STEM programs and the workforce is emphasized.

Types of Awards:

- Alliances, Pre-Alliance Planning Grants
- Bridge to the Doctorate (BD) Activity
- Bridge to the Baccalaureate (B2B) Alliances



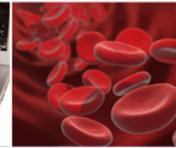


Other Options to Consider

- **Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in STEM (NSF INCLUDES):** A comprehensive initiative to enhance U.S. leadership in science and engineering discovery and innovation by proactively seeking and effectively developing STEM talent from all sectors and groups in our society. See NSF 16-544; new solicitation due in out in November!
- **EHR Dear Colleague Letters (DCLs)**
 - DCL 16-109; Change Makers (AISL, DRK-12, IUSE):
<https://www.nsf.gov/pubs/2016/nsf16109/nsf16109.jsp>
 - DCL 16-031; Leveraging GLOGE to Increase Student Engagement and Diversity (DRK-12, AISL):
<https://www.nsf.gov/pubs/2016/nsf16031/nsf16031.jsp>
 - DCL 16-094; Strengthening Transfer of Students from Two-year Hispanic Serving Institutions to Four-year STEM Programs (LSAMP, S-STEM):
<https://www.nsf.gov/pubs/2016/nsf16094/nsf16094.jsp>



WHERE DISCOVERIES BEGIN

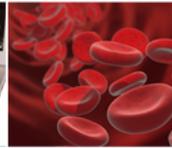


Writing Effective Proposals



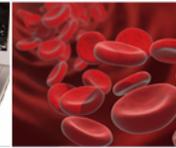
Division of Undergraduate Education
V. Celeste Carter, vccarter@nsf.gov

Division of Human Resource Development
Jermelina Tupas, jtupas@nsf.gov



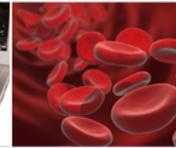
Key Questions for the Prospective PI

- **Why is the work important (need)? AND What has already been done?**
- **What do you intend to do?**
- **How are you going to do the work?**
 - **Do you have a qualified team?**
 - **Do you have the necessary infrastructure?**
- **How will you know if you are successful?**
- **How will you tell others about the project outcomes?**



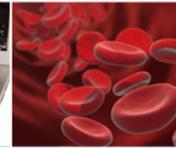
Getting Started

- Start **EARLY**
- Get acquainted with **FASTLANE**
- Read the **correct Program Solicitation** and follow the guidelines. Read the **Grant Proposal Guide (GPG)**
 - **Merit Review (Intellectual Merit and Broader Impacts)**
- Learn about the recent awards using the **NSF Award Search tool**
- Become an **NSF reviewer**
- Contact (e-mail is best) a program officer to discuss your idea. This may cause you to refine your idea and may prevent you from applying to the wrong program
- Check the solicitations for names and contact information



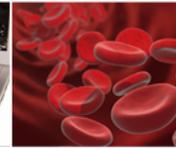
Finding Resources

- NSF Awards Database www.nsf.gov
 - “Awards” tab on top of page
 - Advanced search
 - Enter search term(s)
 - Enter Advanced Technological Education Program
- Mentor Connect www.mentor-connect.org
- ATE Central www.atecentral.net
- ATE Centers www.atecenters.org
- Evalu-ate Center www.evaluate.org
- SCATE: www.teachingtechnicians.org
- ATE TV www.atetv.org



Compliance Check

- Do you specifically address intellectual merit and broader impacts in the project summary? (now have boxes to fill out)
- Number of pages, formatting, font size
- Completeness
 - READ the **Program Solicitation** and **Grant Proposal Guide** (new guidelines!)
 - Data management plan, enforcement of submission deadline- check the EHR specific guidance
 - Automated compliance checks in effect including time of submission (5:01pm gets RWR).
 - Project Data Form (not supported by grants.gov)



New Performers*

**Never received an award
OR no award within 5-yrs
OR never reviewed by CAAR*

Submit a proposal

Merit Review

Ratings and Program Officer review



Program Officer (PO) then does 2 things

Begins negotiation with PI to resolve questions and concerns (intends to recommend for award)

Sends proposal to Division of Grants and Agreements (DGA)

DGA sends New Performer Package to Institution

Institution completes package → DGA

Cost analysis & Audit Resolution (CAAR)

DGA notifies PO recommend award



DGA Declines & De-briefs Institution



WHERE DISCOVERIES BEGIN

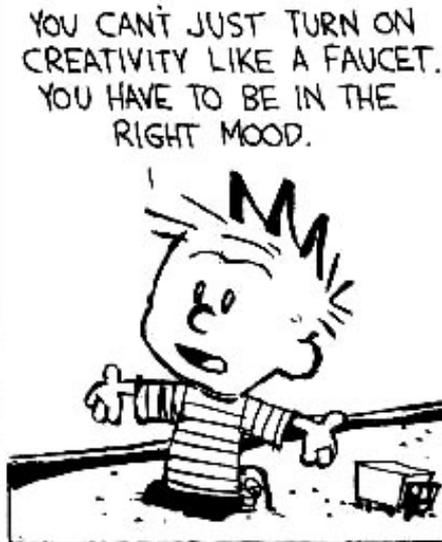


In Conclusion

Read the correct solicitation!

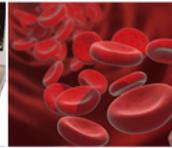
Read the *GPG*!

***Contact us with your questions
and concerns!***





WHERE DISCOVERIES BEGIN



QUESTIONS

THANK YOU